Replacement Essex Minerals Local Plan 2025-2040 (Regulation 18 – Issues and Options)

Sustainability Appraisal (SA): Interim Report

February 2024

Essex County Council

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Place Services is a leading public sector provider of environmental assessment, planning, design and management services. Our combination of specialist skills and experience means that we are uniquely qualified to help public organisations meet the requirements of the planning process, create practical design solutions and deliver environmental stewardship.

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Glossary

Term (abbreviation)	Definition
Aftercare	The steps to be taken following restoration to bring land to the required standard for its intended use once mineral working or landfill has taken place, and its subsequent maintenance.
Aggregates	Sand, gravel, crushed rock and other bulk materials used by the construction industry.
Aggregate Working Party	Established in the 1970's to identify and consider problems in the supply of aggregates. They provide technical advice in relation to the supply of, and demand for, aggregates (including sand, gravel and crushed rock) to the Secretary of State, local government and mineral planning authorities.
Annual Monitoring Report	A yearly report submitted to the government by the Local Planning Authority/ Minerals Planning Authority assessing progress with, and the effectiveness of, the Local Development Framework.
Apportionment	This is the 'amount of minerals needed'. The splitting of national supply guidelines for minerals demand between Minerals Planning Authorities or sub regions.
Appropriate Assessment (AA)	The process and documentation associated with the statutory requirement under the EU Appropriate Assessment Habitats and Species Directive.
Best and Most Versatile Agricultural Land	Land identified by the Department for Environment, Food and Rural Affairs (Defra) as falling within classification grades 1, 2 or 3a, based on the physical characteristics of the land and the limits these impose upon its agricultural uses.
Blue Infrastructure	Blue landscape elements are linked to water. Examples include pools, ponds and pond systems, artificial buffer basins, Sustainable Drainage Systems and water courses.
Borrow Pit	A temporary mineral working to supply material for a specific construction project.
Construction, Demolition and	Controlled (predominantly inert) waste arising from the construction, repair, maintenance and demolition of buildings and

Term (abbreviation)	Definition
Excavation (CD&E) Wastes	structures and the excavation of minerals. It mostly includes brick, concrete, hardcore, subsoil and topsoil, but can include timber, metal, plastics and occasionally special hazardous waste materials.
Development Management (DM)	The process whereby a Local Planning Authority manages development by considering the merits of a planning application and determines the application, having regard to the Development Plan and all other material considerations.
Development Plan	A document setting out the local planning authority's policies and proposals for the development and use of land and buildings in the authority's area. This includes adopted Local Plans, neighbourhood plans and the London Plan, and is defined in section 38 of the Planning and Compulsory Purchase Act 2004. (Regional strategies remain part of the development plan until they are abolished by Order using powers taken in the Localism Act.
East of England Aggregates Working Party	The Aggregates Working Party that Essex County Council is a member of through being the Minerals Planning Authority for the county.
Environment Agency (EA)	A body that aims to prevent or minimise the effects of pollution on the environment and issues permits to monitor and control activities that handle or produce waste. It also provides up-to-date information on waste management and deals with other matters such as water issues, including flood protection advice.
Historic England (HE)	Advisors with responsibility for all aspects of protecting and promoting the historic environment. Historic England is responsible for advising the government on the listing of historic assets.
Environmental Impact Assessment (EIA) and Environmental Statement (ES)	Applicants for certain types of development, usually more significant schemes, are required to submit an environmental statement accompanying a planning application. This evaluates the likely environmental impacts of the development, together with an assessment of how the severity of the impacts could be mitigated.
Examination in Public (EiP)	A term given to the public examination of Development Plan Documents

Term (abbreviation)	Definition
Flood Risk Assessment (FRA) / Strategic Flood Risk Assessment (SFRA)	An assessment of the flooding risk in a particular area so that development needs and mitigation measures can be carefully considered. A SFRA is undertaken at the Plan level.
Green Infrastructure (GI)	Green infrastructure includes parks, open spaces, playing fields, woodlands and also street trees, allotments, private gardens, green roofs and walls, sustainable drainage systems (SuDS) and soils. It can include rivers, streams, canals and other water bodies, sometimes called 'blue infrastructure'.
Groundwater	An important part of the natural water cycle present underground, within strata known as aquifers.
Habitats Regulation Assessment (HRA)	The assessment of the impacts of implementing a plan or policy on a Habitats site. It considers the impacts of a land use plan or project against the conservation objectives of the site and ascertains whether any impacts would adversely affect the integrity of them.
Habitats Site	As per the NPPF, any site which would be included within the definition at regulation 8 of the Conservation of Habitats and Species Regulations 2017 for the purpose of those regulations, including candidate Special Areas of Conservation, Sites of Community Importance, Special Areas of Conservation, Special Protection Areas and any relevant Marine Sites.
Landbank	In the context of the Minerals Local Plan (MLP) this is the stock of planning permissions for the winning and working of minerals.
Local Aggregate Assessment (LAA)	Aids in the planning of a steady and adequate supply of minerals by assessing historic sales data and accounting for all potential supply options. The assessment is produced by the Minerals Planning Authority (MPA) and incorporates the advice of the relevant Aggregates Working Party (AWP).
Local Plan	A Development Plan Document prepared by district and other local planning authorities, including minerals and waste planning authorities, to guide development in their administrative area.
Local Planning Authority (LPA)	The local authority or council that is empowered by law to exercise planning functions. Often the local borough/ district/ city council. County councils are the authority for waste and minerals matters.

Term (abbreviation)	Definition
Low Level Restoration	The re-establishment of land following mineral extraction to a lower level with partial or no infilling (filling the hole created by extraction).
Mineral Consultation Area (MCA)	An area designated up to 100m around Mineral Safeguarding Areas (MSAs), identified in order to ensure consultation with the relevant Minerals Planning Authority (MPA), on applications for non-mineral development in that area located in close proximity to safeguarded land that may compromise the potential future working of that land.
Minerals Development	Any development primarily involving the extraction, processing, storage, transportation or manufacture of minerals. It includes associated minerals development such as rail aggregate depots, facilities for aggregate recycling, secondary processing facilities and coastal wharves for mineral transhipment.
Mineral Extraction	Refers to the quarrying of mineral and the ancillary development associated with this such as processing plants, site offices and weighbridges.
Minerals Hierarchy	The minerals hierarchy sets out the different approaches to the supply of minerals, and orders them in terms of their sustainability. The most sustainable option is to reduce the amount of minerals used, followed by sourcing minerals from secondary and recycled materials, and finally through the primary extraction of minerals.
Mineral Infrastructure	Mineral Infrastructure applies to mineral facilities that are involved in the working and distribution of mineral resources.
Mineral Infrastructure Impact Assessments	Minerals Infrastructure Impact Assessments assess both the potential impact of a nonmineral led development on proximal safeguarded mineral infrastructure, and the impact of the latter on the former, to understand what mitigation measures may be required such that the operations of the mineral infrastructure are not compromised. The assessment should be carried out at such a time as to be capable of informing the planning application that it supports.'
Mineral Infrastructure Consultation Areas (MICA)	Mineral Infrastructure Consultation Areas cover land up to 250m from safeguarded mineral infrastructure. Where non-mineral development is proposed within Minerals Consultation Areas, the appropriate Planning Authority must consult the Mineral Planning

Term (abbreviation)	Definition
	Authority and the application be informed by a Minerals Infrastructure Impact Assessment.
Minerals Local Plan (MLP) .	A statutory development plan prepared by a Minerals Planning Authority setting out policies for the control of development constituting of the winning and working of minerals, or the deposit of mineral waste.
Mineral Planning Authority (MPA)	The planning authority responsible for planning control of minerals development. Essex County Council is the MPA for Essex.
Mineral Resource	A potential mineral deposit where the quality and quantity of material present has not been tested.
Mineral Reserves	Mineral deposits which have been tested to establish the quality and quantity of material present and which could be economically and technically exploited.
Mineral Safeguarding Area (MSA)	An area designated by Minerals Planning Authorities which covers known deposits of minerals which are desired to be kept safeguarded from unnecessary sterilisation by non-mineral development.
National Planning Policy Framework (NPPF) and Planning Practice Guidance (PPG)	Sets out the Government's planning policies for England and how these are expected to be applied. It provides a framework within which local people and their accountable councils can produce their own distinctive local and neighbourhood plans, which reflect the needs and priorities of their communities.
Natural Capital	Natural capital is another term for the stock of renewable and non-renewable resources (e.g. plants, animals, air, water, soils, minerals) that combine to yield a flow of benefits to people.
Natural England (NE)	Body formed by bringing together English Nature, the landscape, access and recreation elements of the Countryside Agency and the environmental land management functions of the Rural Development Service.
Permitted Reserves	Mineral deposits with the benefit of planning permission for extraction.

Term (abbreviation)	Definition
Preferred Site	An area containing mineral resources identified within this Plan where there is a strong presumption in favour of extraction.
Recycled Aggregates	Aggregates comprising waste materials (for example damaged bricks, broken concrete, brickwork, masonry and tarmac) from roads, construction and demolition sites that have been recovered and recycled in the form of manufactured materials such as concrete, brick, plasterboard and ceramic articles.
Restoration (in terms of minerals operations)	The method used to positively enhance a site once mineral extraction has ceased. This could be to restore the site to its original state or another suitable use, by filling the void to former levels, flooding the void or using low level restoration techniques.
Special Area Of Conservation (SAC)	A site designated under the European Community Habitats Directive, to protect internationally important natural habitats and species.
Statutory	Required by law (statute), usually through an Act of Parliament.
Sterilisation	When development or land use changes prevent possible mineral exploitation in the foreseeable future.
Strategic Environmental Assessment (SEA) & Sustainability Appraisal (SA)	SEAs integrate environmental considerations into the preparation and adoption of plans and programmes. They are required by the European Directive 2000/42/EC “on the assessment of the effects of certain plans and programmes on the environment” (the SEA Strategic Environmental Assessment Directive). Government guidance considers that it is possible to satisfy the requirements for Sustainability Appraisal (SA) and SEA through a single approach provided that the requirements of the SEA Directive are met. The environmental, economic and social effects of the plan are presented in the form of an iterative Environmental Report which informs each consultation stage of the Minerals Local Plan’s development.
Traffic Assessment (TA)	The Local Validation Checklist states that a Transport Assessment (TA) is to be required where there is likely to be a significant amount of traffic generated. This is defined as generating in excess of 50pcu (passenger car units (PCU’s)) in the peak hour. PCU’s are a Traffic Assessment calculation of all types of vehicles as car equivalents: an HGV is 2 car units. Mineral sites generate few car movements, but often significant volumes of Heavy Goods Vehicle (HGV) traffic. This can have

Term (abbreviation)	Definition
	major impacts on neighbouring residents and businesses, and is often the cause of most local concern. A TA forms part of an Environmental Statement submitted with most applications requiring Environmental Impact Assessment (EIA). However smaller developments not requiring an EIA do not submit a TA.
Traffic Statement (TS)	A short, straightforward document, dealing with impacts on the transport network accompanying planning applications without providing detailed capacity assessments. A TS is required by the new validation checklists (June 2008) for all development that fall beneath the threshold for a TA but still have some form of material impact on the highway.
Windfall Site	A site not specifically allocated for development in a development plan, but which becomes available for development during the lifetime of a plan.

1. Introduction

1.1 Background

On behalf of Essex County Council (ECC), Place Services has been commissioned to undertake an independent Sustainability Appraisal (SA) for the Essex Minerals Local Plan.

1.2 The Minerals Local Plan (MLP)

A Minerals Local Plan (referred to hereafter as 'the Plan') is being undertaken by ECC. The Regulation 18 Plan follows a 'review' process that was undertaken in 2021 of the adopted MLP (2014) in accordance with and under the provisions of Regulation 10A of the Town and Country Planning (Local Planning) (England) (Amendment) Regulations 2017. That review took into account the changing circumstances affecting the area, as well as relevant changes in national policy, and following consultation it has been determined that the process of a new Minerals Local Plan should be undertaken.

The new Minerals Local Plan (MLP) will provide planning policies for minerals development in Essex until 2040. It will set a policy framework within which the best possible use of finite resources can be made and will allocate sites for future mineral extraction and associated development. The MLP will contain policies promoting recycling and secondary processing, the safeguarding of resources and facilities, and high-quality site restoration, all in the pursuit of sustainable development.

1.3 The Requirement for Sustainability Appraisal

1.3.1 Legislative requirements

The legislative requirement for Sustainability Appraisal (SA) and Strategic Environmental Assessment (SEA) emanates from a high level national and international commitment to sustainable development. The most commonly used definition of sustainable development is that drawn up by the World Trade Commission on Environment and Development in 1987 which states that sustainable development is:

> *'Development that meets the needs of the present without compromising the ability of future generations to meet their own needs'*

This definition is consistent with the themes of the NPPF, which draws upon The UK Sustainable Development Strategy Securing the Future's five 'guiding principles' of sustainable development: living within the planet's environmental limits; ensuring a strong, healthy and just society; achieving a sustainable economy; promoting good governance; and using sound science responsibly.

SEA originates from the European Directive 2001/42/EC *"on the assessment of the effects of certain plans and programmes on the environment"* (the 'SEA Directive') which came into

force in 2001. It seeks to increase the level of protection for the environment; integrate environmental considerations into the preparation and adoption of plans and programmes; and promote sustainable development. The Directive was transposed into English legislation in 2004 by the Environmental Assessment of Plans and Programmes Regulations (the 'SEA Regulation') which requires SEA to be carried out for plans or programmes,

> *'subject to preparation and/or adoption by an authority at national, regional or local level or which are prepared by an authority for adoption, through a legislative procedure by Parliament or Government, and required by legislative, regulatory or administrative provisions'.*

This includes Local Plans. The aim of the SEA is to identify potentially significant environmental effects created as a result of the implementation of the plan or programme on issues such as:

> *'biodiversity, population, human health, fauna, flora, soil, water, air, climatic factors, material assets, cultural heritage including architectural and archaeological heritage, landscape and the interrelationship between the above factors' as specified in Annex 1(f) of the Directive.'*

SA examines the effects of proposed plans and programmes in a wider context, taking into account economic, social and environmental considerations in order to promote sustainable development. It is mandatory for Local Plans to undergo a Sustainability Appraisal in accordance with the Planning and Compulsory Purchase Act 2004 as amended by the Planning Act 2008, and in accordance with paragraph 165 of the NPPF.

Whilst the requirements to produce a SA and SEA are distinct, Government guidance considers that it is possible to satisfy the two requirements through a single approach providing that the requirements of the SEA Directive are met. This integrated appraisal process will hereafter be referred to as SA.

1.3.2 The Requirement Concerning the Minerals Local Plan

The adopted Minerals Local Plan 2014 was subject to SA as required by the above legislation. This consisted of the following documents that were produced throughout the plan-making process:

- Original Scoping Report, 2005
- Revised Scoping Report (Eunomia), June 2008
- Minerals Development Document: Issues and Options. First Stage Environmental Report (Eunomia), January 2009
- Preferred Approach SA/SEA Environmental Report December 2010
- SEA Statement on Additional Sites August 2011

- Replacement Minerals Local Plan: Pre-Submission SA/SEA Environmental Report, November 2012
- Essex County Council Replacement Minerals Local Plan: Main Modifications and Site Assessment Report SA/SEA Addendum, February 2014

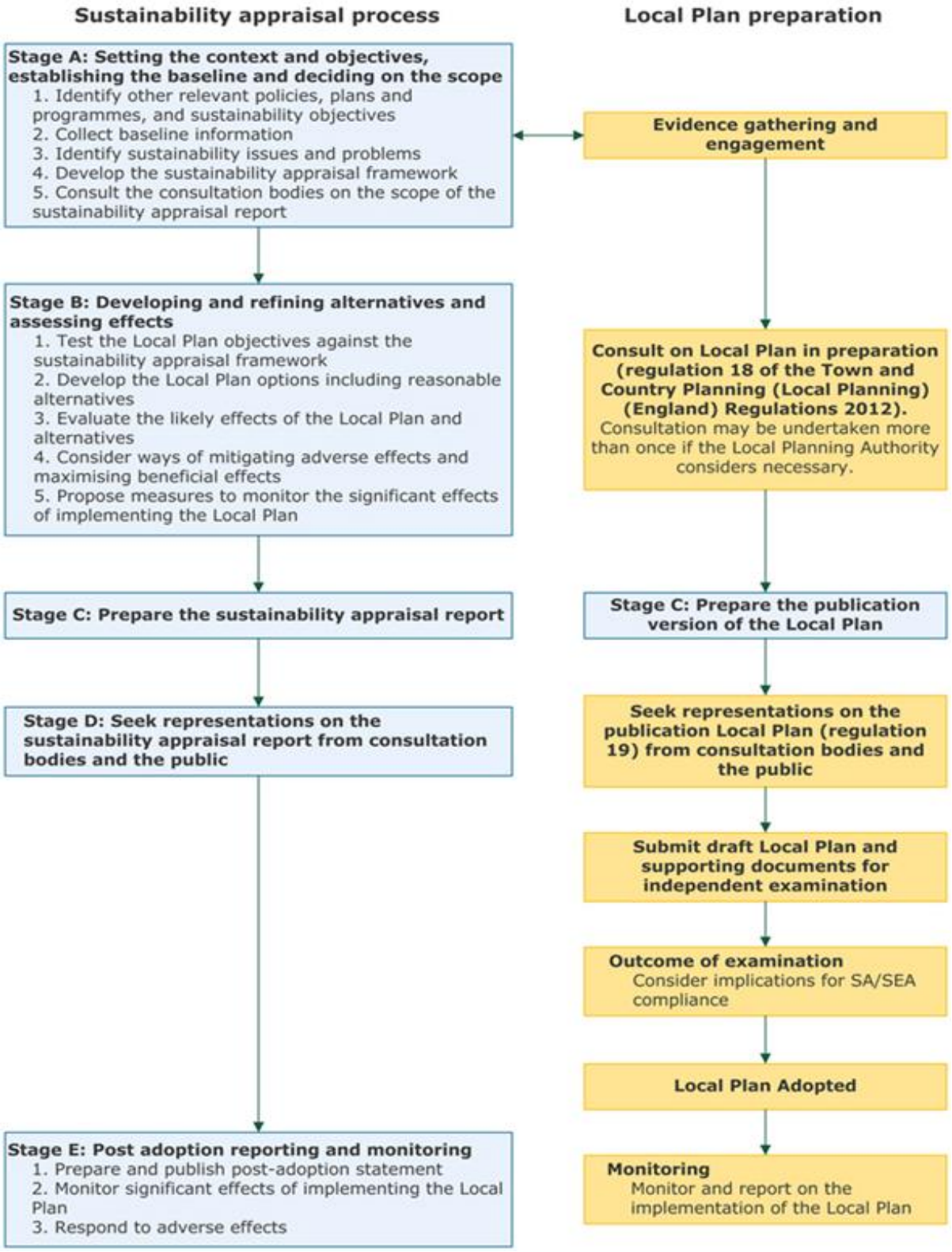
Carrying out SA work throughout the plan preparation was part of an integrated approach and has ensured that the sustainability considerations identified were addressed through subsequent iterations of the Minerals Local Plan from preliminary work to adoption in 2014. A review of the Minerals Local Plan was undertaken in 2021, and this was also subject to SA. The following documents at that stage were also produced and consulted upon:

1. A Sustainability Appraisal Scoping Report (2020)
2. A Sustainability Appraisal Environmental Report (2021)

1.4 The Sustainability Appraisal Process

The methodology adopted for the SA of the Minerals Local Plan Review at this stage follows that of the Sustainability Appraisal process. The following 5 sequential stages are documented below.

Figure 1: Stages in the Sustainability Appraisal Process and Local Plan Preparation



Source: Planning Practice Guidance – Sustainability appraisal requirements for local plans (Paragraph: 013 Reference ID: 11-013-20140306 Revision date: 06 03 2014)

1.5 The Aim and Structure of this Report

The aim of this Report is to respond to Stages B and C of the SA process shown in the previous figure; notably to:

- Test the MLP content against the sustainability appraisal framework (Stage B1)
- Develop the MLP options including reasonable alternatives (Stage B2)
- Evaluate the likely effects of the MLP content and alternatives (Stage B3)
- Consider ways of mitigating adverse effects and maximising beneficial effects (Stage B4)
- Propose measures to monitor the significant effects of implementing the MLP (Stage B5)
- Prepare the Sustainability Appraisal Report (this Report, Stage C)

These tasks are outlined in more detail within the below sub-headings.

1.5.1 Testing the Plan objectives against the SA Objectives

The Plan will likely include a number of key objectives. This section of the Plan will represent the key aims that the plan-makers wish to achieve in formulating the Plan.

Although findings will be presented to the plan-makers at an early stage as part of an iterative process, the SA Environmental Report (Stage C below) will present these findings in the form of a matrix that explores whether the objectives are compatible and whether they need to be expanded to ensure that the Plan seeks to minimise any possible environmental effects and maximise those that are indicatively positive. A narrative will be provided that will make any such recommendations.

1.5.2 Developing strategic alternatives

A key part of the SA process is the identification of all ‘reasonable’ alternatives to the Plan’s content. ‘Reasonable’ alternatives need to be fully considered by the plan-makers and assessed within the SA Environmental Report. They must be realistic, achievable and sufficiently distinct from the preferred strategy to warrant separate assessment.

1.5.3 Predicting the effects of the draft Plan including alternatives

It is integral that all elements of the Plan that may give rise to any environmental, social or economic effects are assessed within the SA against the SA Objectives, as well as the alternative approaches as required of Stage B2. Commonly, this includes all policies and site

allocation options.

Plan content and alternative approaches must be assessed to the same level of detail to create a 'level playing field' and against the SA Framework presented within this Scoping Report. This will be done using quantitative information as far as possible. Where there are data gaps in the assessment, assumptions ('qualitative' judgements) will be made consistently and fairly and documented in the SA Environmental Report.

1.5.4 Evaluating the effects of the draft Plan, including alternatives

In addition to the process explained in Stage B3, an evaluation of the effects of the Plan and alternatives is required of the SA process. This will be presented in the form of a narrative that explains the various merits and demerits of the Plan and alternative approaches and whether mitigation can be implemented or sought to eradicate or minimise any negative effects. It should be noted however, as set out in Paragraph 009 of Planning Practice Guidance for Strategic environmental assessment and sustainability appraisal, that 'the Sustainability Appraisal should only focus on what is needed to assess the likely significant effects of the plan. It should focus on the environmental, economic and social impacts that are likely to be significant. It does not need to be done in any more detail, or using more resources, than is considered to be appropriate for the content and level of detail in the Local Plan.'

1.5.5 Considering ways of mitigating adverse effects

Stage B5 will include the consideration of whether mitigation can be applied to ensure that any of the Plan's content can be made acceptable in planning terms. This will be presented in the form of recommendations. Although the iterative nature of SA and plan-making will ensure that recommendations are factored into the final Plan, the SA Environmental Report will chronicle those recommendations made throughout the process, and whether they have been taken on-board. This stage will also include recommendations for maximising positive effects, where possible.

1.5.6 Proposing measures to monitor the environmental effects of Plan implementation

The last step of Stage B is to include a list of possible indicators that can be collected to monitor those effects highlighted within the SA Environmental Report. These will include suggested data sources relevant for all of the SA Objectives and 'key questions / criteria' included within this Scoping Report.

2. What SA work has been done to date?

2.1 The SA of the Minerals Local Plan 2014

The Minerals Local Plan (MLP) was adopted in 2014 following an Examination in Public (EiP). The adopted MLP was accompanied by a SA, as required, which was also subject to examination.

The adopted MLP contained much of the same thematic content as contained within the amended MLP, to which this SA relates. It covered the statutory requirements of a minerals plan, notably:

- Planning policies for minerals development in Essex until 2029;
- The identification of future sites for mineral development (strategic site allocations); and
- Ways to reduce reliance on primary mineral resources in Essex, including through the use of recycled aggregates.

The SA of the adopted MLP assessed all relevant policies and site allocations of the Plan, including 'reasonable' alternatives to these. As the adopted MLP is still valid in so far as we are still within that plan period, the SA work undertaken to assess the adopted MLP is similarly relevant, and forms the basis for the identification of effects in the SA of the MLP. Much of the content of the adopted MLP is not proposed for amendment, and as such, those elements of the SA of the adopted MLP can be taken as the baseline position from which new effects are identified within this SA report.

Despite this however, this SA report does update various elements of the SA of the adopted Minerals Local Plan in those instances where best practice has identified new methods in the identification of sustainability effects. Similarly, this SA identifies and updates effects where baseline data allows the better identification of effects, and with more precision.

2.2 The SA Scoping Report for the Minerals Local Plan

With the above considered, a SA Scoping Report was produced for the adopted Minerals Local Plan 2014, which included information regarding context, baseline, issues and problems and a Sustainability Framework. These elements were also all refined through that process, culminating in the SA that was submitted for examination in 2014.

Since 2014, much of the context, baseline, and issues and problems would have changed; in part due to the emergence of the revised NPPF and National Planning Practice Guidance, but also through the adoption and use of the 2014 MLP policies to determine planning decisions in Essex.

The Scoping Report 2020 updates the context and baseline relevant to current times, and also the Sustainability Framework.

2.2.1 Consultation on the Scoping Report with the Statutory Consultees

Following the completion of a draft Scoping Report in 2020, consultation was undertaken with comments requested from the 'Statutory Consultees' of the Environment Agency, Natural England and Historic England. Comments were received on the Scoping Report, and changes made to the SA framework as a result.

A summary of the comments received, and actions taken within the SA process in response to these comments, is outlined in the table below.

Table 1: Scoping Report consultation comments

Consultee	Comment	Action
Natural England	We advise that the following types of plans relating to the natural environment should be considered where applicable to your plan area: South Essex Green and Blue Infrastructure Plan; Essex Green Infrastructure Plan, which Natural England recently consulted on; Essex Biodiversity Action plans; Rights of Way Improvement Plans; Shoreline management plans; Coastal access plans; AONB and National Park management plans; Relevant landscape plans and strategies; North Essex Strategic Plan; South Essex Strategic Plan (emerging); and it may be beneficial to refer to Minerals and Waste Plans from adjacent Authorities.	These types of plans have been incorporated into the contextual review of the SA and informed the appraisal of the MLP at this stage.
	Should any new site allocations be scoped in, the SA should consider how they may affect public rights of way and the England Coast Path as well as any potential impacts on protected sites or landscapes. The framework should ensure air quality impacts on environmental features and biodiversity are considered, not just human health. Where relevant, air pollution impacts (including dust impacts) from the movement of minerals (i.e. transport impacts) should be considered as well as the operational impacts of the quarries. The framework needs to assess how coastal erosion will impact on the future management of existing	Whereas site allocations would be scoped into the SA, no new sites or extensions are additionally proposed as part of the MLP. The Plan's site allocations remain the same as included within the adopted MLP, a SA of which was completed and examined in 2014.

Consultee	Comment	Action
	waste sites and we recommend that no new sites are proposed where there may be coastal erosion issues. Any new coastal sites should consider the potential impact on the England Coast Path. With regards to Health there is an opportunity to enhance the references to Accessible Natural Greenspace (ANGSt), especially where new sites are and/or where restoration plans are produced. We recommend that you consider how the EMLP meets the needs of the Essex Green Infrastructure Strategy and the South Green and Blue Infrastructure strategy. You may wish to use the South Essex Green Infrastructure Strategy to inform the baseline. SA Objective 1: We support the objective to protect and enhance biodiversity throughout Essex and beyond. Greater emphasis could be given to the potential to improve the character and biodiversity of restoration sites and commit to Net Gain Principles, ecological networks and expanding both the extent and quality of priority habitat. Does this objective provide opportunities for the creation of accessible greenspace where restoration is planned? Does the objective commit to minimising the number of sites where adverse impacts on the natural environment may occur? SA Objective 11: With reference to NPPF 204 - so far as practicable, does this objective take account of the contribution that substitute or secondary and recycled materials and minerals waste would make to the supply of materials, before considering extraction of primary materials? SA Objective 12: Does this objective ensure that restoration will be of the highest quality and ensure that worked land is restored at the earliest opportunity?	Additional 'key questions' have been added to the SA Framework as a result of this consultation comment. Additional 'key questions' have been added to the SA Framework as a result of this consultation comment. Additional 'key questions' have been added to the SA Framework as a result of this consultation comment.

Consultee	Comment	Action
Historic England	If the Council intends to supplement its own provision of land-won aggregates with marine dredged aggregates to meet its apportionment, then the Report should also refer to the draft South East Marine Plan, since any extraction would need to comply with the policies set out in that document.	This plan has been incorporated into the contextual review of the SA and informed the appraisal of the MLP at this stage.
	While we welcome the identification of historic environment issues in this table (Table 2), we are surprised that there is no reference here to Registered Parks and Gardens, Registered Battlefields, or non-designated heritage assets. These landscape scale heritage assets can be particularly sensitive to changes in their setting, for example through visual intrusion, the introduction of movement and noise, and changes in hydrology / groundwater flows. The text should be amended to include these assets, and it may also be helpful to include a high level summary outlining the ways in which mineral extraction and restoration can impact on the historic environment as set out above.	Additional 'key questions' have been added to the SA Framework as a result of this consultation comment, as well as reference as recommended within Table 2.
	We welcome the reference to the historic environment in this section (landscape), but suggest the text could be extended to refer to the wider role that landscape plays in proving the setting for all heritage assets. Landscape is an important part of the setting of heritage assets and this should be reflected in the text of table 2.	Additional 'key questions' have been added to the SA Framework as a result of this consultation comment and reference in Table 2.
	We welcome the reference to the effects of long-term pumping on other abstractors and wetland habitats, but suggest this should be broadened out to include the potential impacts of dewatering on the historic environment, for example on archaeology as well as ornamental water features such as lakes and fountains within Registered Parks and Gardens etc. On this point we suggest that it might be beneficial to include a specific standalone theme on groundwater, rather than combining these within a wider flooding	Additional 'key questions' have been added to the SA Framework as a result of this consultation comment and reference in Table 2. Sustainability issues related to groundwater have been incorporated

Consultee	Comment	Action
	theme because the potential issues and therefore the interventions will need to be distinct.	into Sustainability Objective 2 (water quality)
	Table 3 - The SA Objectives: We recommend that SA Objective number 8 is amended to reflect the NPPF hierarchy of avoidance before mitigation, and to reflect potential negative impacts which could result from changes within the setting of heritage assets. We suggest the following: 'To avoid, and if this is not possible minimise impacts, both direct, and indirect (e.g. through changes in setting), on the significance of the historic environment, both above and below ground.'	The Sustainability Objective has been amended to reflect the recommended text.
	Proposed guide questions to meet objective - 8): We recommend amending bullet one to read: 'Have an adverse impact on designated and non-designated heritage assets, including Listed Buildings, Conservation Areas, Registered Parks and Gardens, Scheduled Monuments, and archaeological deposits.' We further suggest that this section could be enhanced with the inclusion of a new guide question relating to the condition of heritage assets. This could read: 'Does the Plan cause a change to the condition of designated heritage assets, and assets identified as being Heritage at Risk?'	Additional 'key questions' have been added to the SA Framework as a result of this consultation comment.
	Regarding SA Objective number 2, to maintain and enhance water quality and resources, we suggest the inclusion of a new indicator to capture any changes to buried archaeology and historic water features. This could read: 'Condition of historic water features (e.g. ornamental lakes, and fountains etc.) within Registered Parks and Gardens, and buried archaeology.'	Additional 'key questions' have been added to the SA Framework as a result of this consultation comment.
	AI.3 Cultural Heritage: We support the general description of the various classes of heritage assets outline in AI.3, but draw your attention to AI.3.6 Historic Parks and Garden which states "These are designated by	The baseline information section has been amended

Consultee	Comment	Action
	English Heritage….". This should be amended to read "These are designated by Historic England…."	to reflect the recommended text.
Environment Agency	No response received.	No action.

2.2.2 Contextual Review of other relevant Plans and Programmes

The MLP must have regard to existing policies, plans and programmes at national and regional levels and strengthen and support other plans and strategies. It is therefore important to identify and review those policies, plans and programmes which are likely to influence the Plan at an early stage. The content of these plans and programmes can also assist in the identification of any conflicting content of plans and programmes in accumulation with the Plan. Local supporting documents have also been included within this list as they will significantly shape policies and decisions in the area.

It is recognised that no list of plans or programmes can be definitive and as a result this report describes only the key documents which influence the Plan. Table 1 outlines the key documents, whilst a comprehensive description of these documents together with their relevance to the Plan is provided within Annex A.

Table 2: List of key other plans and programmes

International Plans and Programmes
European Landscape Convention (Florence, 2002)
European Union Water Framework Directive 2000
European Union Nitrates Directive 1991
European Union Noise Directive 2002
European Union Floods Directive 2007
European Union Air Quality Directive 2008 (2008/50/EC) and previous directives

(96/62/EC; 99/30/EC; 2000/69/EC & 2002/3/EC)
European Union Directive on the Conservation of Wild Birds 2009
European Union Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora 1992
European Community Biodiversity Strategy to 2020
United Nations Kyoto Protocol
World Commission on Environment and Development 'Our Common Future' 1987
The World Summit on Sustainable Development Johannesburg Summit 2002
Environmental Assessment of Plans and Programmes Regulations 2004 (the SEA Regulations)
The Conservation of Habitats and Species Regulations, 2010
The Industrial Emissions Directive 2010
European Convention on the Protection of the Archaeological Heritage (Valletta, 1992)
National Plans and Programmes
The Conservation of Habitats and Species Regulations, 2017 (as amended)
Safeguarding our Soils: A Strategy for England (Defra, 2009)
National Planning Policy for Waste (NPPW, 2014)
National and Regional Guidelines for Aggregates Provision in England 2005 – 2020 (2009)

The Countryside and Rights of Way (CRoW) Act, 2000
Model Procedures for the Management of Land Contamination – Contaminated Land Report 11 (September 2004)
Water Resources Strategy for England and Wales, 2009
Flood and Water Management Act, 2010
Underground, Under Threat – Groundwater protection: policy and practice (GP3)
Planning (Listed Buildings and Conservation Areas) Act, 1990
Ancient Monuments & Archaeological Areas Act 1979
The Air Quality Strategy for England, Scotland, Wales and Northern Ireland, 2007
(National) Planning Practice Guidance (updated)
National Planning Policy Framework (2024)
County / Regional Plans and Programmes
Essex Minerals Local Plan (including Inspector's Report) (2014)
Greater Essex Local Aggregate Assessment (2022)
Mineral Site Restoration for Biodiversity – Supplementary Planning Guidance (2016)
Essex and Southend-on-Sea Waste Local Plan (2017)
Minerals and Waste Authority Monitoring Report 1 April 2020 to 31 March 2021 (2023)
Draft report to determine whether marine aggregate supply can offset the demand for

land-won aggregates in Essex (October 2020)
Essex Minerals Local Plan Review 2021 – Report setting out the Rationale behind the Proposed Amendments (2020) (referred to as the 'The Rationale Document')
Review of 'Windfall Sites' for Mineral Extraction, Essex County Council (September 2019)
A Re-examination of Building Sand Provision in Essex (September 2019)
Forecasting the Need for Mineral Provision in Essex 2025-2040 (2023)
The South East Inshore Marine Plan (2021)
Local Level Plans and Programmes
Basildon Borough Council Revised Publication Local Plan 2014-2034 (withdrawn)
Braintree District Local Plan 2033 (Section 1 and 2) (2022)
Brentwood Local Plan 2016-2033 (2022)
Castle Point Local Plan (emerging)
Chelmsford Local Plan 2013-2036 (2020) and Issues and Options Consultation Document (plan review) (2022)
Colchester Local Plan 2017-2033 (Section 1 and 2) (2021)
Epping Forest District Local Plan 2011 to 2033 (2023)
Harlow Local Development Plan (2020)
Maldon District Council Local Development Plan (2014-2029) (2017) and Local Development Plan Review 2021+

Rochford District Council Local Plan (2025-2040) (emerging)
Tendring District Council Local Plan 2013-2033 and Beyond (Section 1 and 2) (2022)
Uttlesford Local Plan 2021 to 2041 Regulation 18 (2023)
Southend-on-Sea New Local Plan Refining the Plan Options (2021)
Thurrock Local Plan Initial Proposals (2023) (emerging)

2.2.3 Baseline summary of the County relevant to the remit of the Plan

The SA Directive requires the production of the following information:

> *'The relevant aspects of the current state of the environment and the likely evolution thereof without implementation of the plan or programme;" Annex 1(b);*
>
> *The environmental characteristics of areas likely to be significantly affected;" Annex 1(c); and*
>
> *Any existing problems which are relevant to the plan or programme including, in particular, those relating to any areas of a particular environmental importance such as areas designated pursuant to Directives 79/409/EEC and 92/43/ECC" Annex 1(d).'*

Annex B to this Report outlines the baseline information profile for the Plan area, and where relevant further afield. The baseline information identifies current sustainability issues and problems in the Plan area to be addressed and provides a basis for predicting and monitoring the effects of implementing the document. To ensure the data collected within Annex B was relevant and captured a range of sustainability issues, it was categorised under thematic topics. They cover all the topics referred to in Annex 1(f) of the SEA Directive and follow the order of:

- Minerals
- Waste
- Economy and employment
- Housing
- Health and wellbeing

- Transport and connectivity
- Cultural heritage
- Biodiversity and nature conservation
- Landscapes
- Water
- Climate and energy
- Air
- Soils

2.2.4 Sustainability Issues & Problems Relevant to the Plan Area

The outcome of the above processes related to the identification of relevant plans and programmes and the baseline information profile of the Plan area is the identification of key sustainability and environmental issues. These represent those sustainability and environmental problems facing the Plan area which assist in the finalisation of a set of relevant SA Objectives that can be subsequently expanded upon in a SA Framework.

The assessment of the Plan will be able to evaluate, in a clear and consistent manner, the nature and degree of impact and whether significant effects are likely to emerge from the Plan Review's content. The following table outlines the thought process which has led to the formulation of the SA Objectives for the Plan.

Table 3: Key Sustainability Issues

General Theme	Focused Theme	Description / Supporting Evidence
Biodiversity	Ecological designations and the effects of minerals activities	Essex contains a range of sites with ecological designations, including Ramsar sites, Special Protection Areas, Special Areas of Conservation, Sites of Special Scientific Interest and National and Local Nature Reserves. In addition, a number of Biodiversity Action Plans and Habitat Action Plans are in place, with the aim of conserving and increasing nationally and locally important habitats and species in the county.

General Theme	Focused Theme	Description / Supporting Evidence
Water quality	Risk of contamination	The quality of water within the County's rivers is generally fair to good in terms of chemical and biological quality. However, the chemical quality of the rivers is worse than the average quality of rivers in the East of England. There are potential issues with removal of part of an aquifer and disrupting groundwater flows. Risk of contamination of surface and groundwater and siltation of watercourses: • pollution from the working of previously contaminated land, including the reworking of mineral waste tips for secondary aggregates and post-restoration uses, e.g. use of fertilisers, surface water run-off. • by suspended sediment from mineral working and tipping of mineral waste. • pollution from natural contaminants and fuels, oils and solvents.
Soils	Soil quality and land stability	Mineral operations need to have regard to: • Degradation of soil stored during period of mineral working • Risk of land contamination • Fragmentation of agricultural holdings • Land take and permanent loss of soils • Land instability during mining operations and reclamation • Risk of subsidence or instability from sub-surface working, tipped land or hydrological changes
Landscape	Restoration for landscape benefits	Many mineral deposits in Essex lie close or in sensitive landscapes. The Essex landscape and its relationship with historic settlements form an important component of the historic environment contributing to place making and local

General Theme	Focused Theme	Description / Supporting Evidence
		distinctiveness. Landscape plays an important role in proving the setting for all heritage assets, and as such, landscape is an important part of the setting of heritage assets. The use of quarries as landfill sites can extend the time for restoration and therefore increases landscape impacts. Landscape restoration and management opportunities should be maximised in relation to minerals/landfill operations and after-use.
Historic environment	Minimising / avoiding effects on assets	The county includes large numbers of recorded archaeological sites, listed buildings and conservation areas, as well as scheduled monuments. Many of these assets lie in close proximity to mineral deposits. The NPPF requires a positive strategy for the conservation of the historic environment. Landscape scale heritage assets such as Registered Parks and Gardens, Registered Battlefields, or non-designated heritage assets, can be particularly sensitive to changes in their setting, for example through visual intrusion, the introduction of movement and noise, and changes in hydrology / groundwater flows.
Flooding	Drainage and disturbance	Throughout the county there is a greater need for flood and surface water management which has implications regarding the location, longevity and viability of minerals operations. Proposed minerals developments must ensure they do not impede drainage in any way, and that mineral processing plant is not at risk of flood damage. Similarly, any proposed minerals and waste developments should not impact any flood infrastructure. In general, the following risks relate to mineral development: • Disturbance or removal of surface features such as watercourses or flood storage. • Increased risk of groundwater flooding

General Theme	Focused Theme	Description / Supporting Evidence
		from low level restoration. • Effects of long-term pumping on other abstractors and wetland habitats. • Potential impacts of dewatering on the historic environment, for example on archaeology as well as ornamental water features such as lakes and fountains within Registered Parks and Gardens
Transport	Congestion and road safety	Parts of the strategic road network pass through towns and villages creating issues for local communities in terms of air quality, amenity and road safety which can be heavily impacted by increases in HGV trips - particularly in sensitive rural areas and designated Air Quality Management Areas (AQMAs). Minerals and waste development may lead to changes in local travel patterns that may intensify existing issues such as congestion or road safety.
Minerals development	Safeguarding resource	There is a strong need to safeguard mineral resources, including through increased use of secondary and recycled materials. There is a strong need to ensure that mineral resources are both adequately supplied and also viable from an economic viewpoint. This is also the case for wider minerals and waste industries.
Minerals development	Meeting demand / growth needs	At the LPA level, growth requirements are at an unprecedented level, and house building is needed to meet a housing shortage. Similarly, a number of Nationally Significant Infrastructure Projects have been identified within Essex. Without a plan-led system a steady and adequate supply of building materials might not be forthcoming to facilitate forecasted development needs.

General Theme	Focused Theme	Description / Supporting Evidence
Health	Human health and pollution	Potential impacts on health, well-being and quality of life should be taken into account in identifying suitable sites for minerals sites and waste facilities. The potential impact of noise, dust, vibration, lighting and water pollution generated by ongoing operations needs to be considered.

2.2.5 The Sustainability Objectives formulated for the SA

The following table explores whether the identified SA Objectives above fall into the three broad categories of sustainability, namely social, environmental and economic themes.

Table 4: The SA Objectives

SA Objective	Environmental	Social	Economic
1) To protect and enhance biodiversity through Essex and beyond	✓		
2) To maintain and enhance water quality and resources	✓	✓	
3) To minimise the risk of flooding	✓	✓	
4) To encourage the sustainable use of land and protection of soils, including the best and most versatile agricultural land.			✓
5) To promote the minerals supply hierarchy and where mineral waste is produced, to promote the movement of minerals waste up the waste management hierarchy.	✓	✓	✓
6) To safeguard and where possible improve air quality.	✓	✓	

SA Objective	Environmental	Social	Economic
7) To minimise net emissions of greenhouse gases and increase adaptability to climate change.	✓	✓	✓
8) To avoid, and if this is not possible minimise impacts, both direct, and indirect (e.g. through changes in setting), on the significance of the historic environment, both above and below ground.	✓	✓	
9) To protect and enhance the quality and character of landscapes, including the Metropolitan Green Belt	✓	✓	
10) To maximise opportunities for economic development, including jobs, arising from minerals activities.		✓	✓
11) To promote improvements in the sustainable use of minerals.	✓	✓	✓
12) To achieve restoration and the aftercare of all mineral sites that offer the best sustainability benefits.	✓	✓	✓
13) To reduce the transportation of minerals, road congestion, and promote the movement of minerals using sustainable transport.	✓	✓	✓
14) To protect and where possible enhance human health and well-being.		✓	
15) To minimise any nuisance and impact on local amenity resulting from minerals activities		✓	

2.2.6 The Compatibility of the Sustainability Objectives

A total of 15 SA Objectives have been derived for the appraisal of the Plan. They are based on the scope of the document, policy advice and guidance and to the assessment of the current state of the environment.

It is useful to test the compatibility of SA Objectives against one another in order to highlight any areas where potential conflict or tensions may arise. It is to be expected that some objectives are not compatible with other objectives thereby indicating that tensions could occur. Objectives which are based around environmental issues sometimes conflict with economic and social objectives, and vice versa.

The majority of the SA Objectives relevant to the content of the Plan, are broadly compatible or otherwise unrelated. There are however a number of potential incompatibilities identified in the compatibility matrix, and these are discussed below:

- Protecting and enhancing biodiversity (SA Objective 1) and minerals extraction / activities (SA Objective 12): The possibility of effects arising from any change in land use on biodiversity creates an incompatibility between Plan aims and the need to protect wildlife and habitats, either on-site or where pathways exist. However, after care schemes post-extraction can ensure habitat enhancements, and net gains in biodiversity.

- Protecting landscapes (SA Objective 9) and ensuring biodiversity net gains (SA Objective 1): Although a desire to protect landscape and biodiversity are compatible notionally, in restoring mineral voids there can be a conflict between the merits of restoring landscapes to original levels and the creation of biodiversity net gains through restoration at lower levels.

- Maintaining and enhancing water quality (SA Objective 2) and minerals extraction / activities (SA Objective 12): There is a notional possibility that minerals extraction / activities can lead to adverse impacts on groundwater conditions. Those SA Objectives that seek the protection of water quality for environmental purposes and ensuring minerals extraction for economic needs may therefore be incompatible in some areas of the county.

- The protection of the best and most versatile agricultural land (SA Objective 4) and minerals extraction / activities (SA Objective 12): There is a possibility that minerals extraction / activities can lead to adverse impacts on the capacity of soils for future use. There is no longer a requirement to return land to an agricultural after-use; instead restoration need only allow the possibility. Those SA Objectives that seek the protection of soils and minerals extraction for differing economic purposes respectively may therefore be incompatible in some areas of the county.

- Reducing ‘mineral miles’ (SA Objective 14) and maximising jobs from minerals activities (SA Objective 11): There is a potential incompatibility through a desire to

reduce the transportation of minerals and the jobs that such transportation create.

2.3 SA Environmental Report of the MLP Review (2021)

The SA Environmental Report completed in 2021 alongside the MLP Review document represented an iterative assessment of the Plan's proposed policies at that point. This covered the Plan's (and where relevant reasonable alternative approaches to):

- Spatial Vision;
- Aims and Strategic Objectives;
- Strategic Policies;
- The Minerals Provision Figure;
- Preferred Minerals Sites for Primary Mineral Extraction; and
- Development Management Policies.

The 'whole Plan' effects highlighted within the SA at this stage were identified per sustainability theme, and these are outlined in the table below.

SA Objective Theme	Impact
Biodiversity	Uncertain / positive effects
Water quality and resources	No effects
Flood risk	No effects
Soils / agricultural land preservation	Uncertain effects
Minerals supply	Significant positive effects
Air quality	Uncertain effects
Climate change	No Effects / Positive effects
Historic Environment	No effects
Landscape	Positive / Uncertain effects

SA Objective Theme	Impact
Economic development	Positive effects
Sustainable mineral use	Significant positive effects
Restoration and aftercare	Significant positive effects
Sustainable transport	Positive effects
Health and well-being	No Effects / Positive Effects
Nuisance & impact on local amenity	No effects

The proposed amendments to the MLP and the Interim SA Environmental Report were consulted on for a period of six weeks between 18th March and 29th April 2021. It should be acknowledged that at that stage, the requirement for new site allocations was not justified. As a result, site options were not included as part of the MLP Review or any such potential effects arising from them identified within the SA.

3. The Approach to Assessing the MLP

3.1 Assessing Policies and the types of effects considered

The SA of the Plan within this report assesses the MLP's content against the SA Objectives and key questions / criteria outlined in the sustainability frameworks. The aim is to assess the sustainability effects of the MLP following implementation. The assessment looks at the secondary, cumulative, synergistic, short, medium and long-term permanent and temporary effects in accordance with Annex 1 of the SA Directive, as well as alternatives, and suggests mitigation measures where appropriate. The findings are accompanied by an appraisal matrix which documents the effects over time.

The content of the assessment tables responds to those 'significant effects' of the policy or element of the Plan subject to assessment. Assessments also look at the following:

- Temporal effects;
- Secondary, Cumulative and Synergistic effects;
- The assessment of Alternatives; and
- Proposed mitigation measures / recommendations.

These, and 'significant effects' are further described in the following sub-sections.

3.1.1 Description of 'Significant Effects'

The strength of impacts can vary dependant on the relevance of the policy content to certain SA Objectives or themes. Where the policies have been appraised against the SA Objectives the basis for making judgements within the assessment is identified within the following key:

Possible impact	Basis for judgement
++	Strong prospect of there being significant positive impacts.
+	Strong prospect of there being minor positive impacts.
?	General uncertainty where there is a lack of current evidence (to be elaborated in commentary in each instance) or uncertainty surrounding the degree of impact assessed (also elaborated on within commentary).

Possible impact	Basis for judgement
0	No impact.
-	Strong prospect of there being minor negative impacts and mitigation would be possible / issues can be rectified.
- -	Strong prospect of there being significant negative impacts with mitigation unlikely to be possible (pending further investigation) / further work is needed to explore whether issues can be rectified.
N/A	Not applicable to the scope or context of the assessed content.

Commentary is also included to describe the significant effects of the policy on the sustainability objectives.

A NOTE ON 'UNCERTAIN IMPACTS / EFFECTS' IN THE SA:

Within the following SA Framework, a degree of impact is highlighted as 'uncertain'. It should be acknowledged that within the assessment of options 'uncertain' impacts can 'lean' towards either positive or negative impacts, and these additional degrees of impact will be highlighted within option assessments where relevant.

Additionally, it should also be acknowledged that 'uncertain' impacts will only be highlighted where 'positive' or 'negative' impacts cannot be predicted with any assurance or where there is a lack of reliable quantitative information that can be used to predict impacts (or when the only available information is considered qualitative / anecdotal).

3.1.2 Description of 'Temporal Effects'

The assessment of the Plan's content should recognise that impacts may vary over time. The SA Environmental Report will highlight where effects may change over time in those instances where evidence exists to support such judgements. Should no evidence exist, then temporal effects will be based on reasonable assumptions, which will also be highlighted and signposted within the Environmental Report. Effects for each policy appraisal will be highlighted as:

- S/T: Short Term (responding to the early to mid-term period of Plan period)
- M/T: Medium Term (responding to the latter stages of the Plan period)
- L/T: Long Term (responding to restoration / after-care and beyond the Plan period)

3.1.3 Description of 'Secondary, Cumulative and Synergistic Effects'

In addition to those effects that may arise indirectly (secondary effects), relationships between different elements of the Plan will be assessed in order to highlight any possible strengthening or weakening of impacts from their implementation together. Cumulative effects respond to impacts occurring directly from two different elements together, and synergistic effects are those that offer a strengthening or worsening of more than one element of the Plan that is greater than any individual impact. Additionally, any cumulative impacts with other plans or projects will be highlighted within the assessment.

3.1.4 Description of 'Reasonable Alternatives Considered'

Planning Practice Guidance states that reasonable alternatives are the different realistic options considered by the plan-maker in developing the policies in its plan. They must be sufficiently distinct to highlight the different sustainability implications of each so that meaningful comparisons can be made. The alternatives must be realistic and deliverable.

3.1.5 Description of 'Proposed Mitigation Measures / Recommendations'

Negative or uncertain impacts may be highlighted within assessments. As such, mitigation measures may be needed and these will be highlighted in this section for each policy where relevant. In addition to this, this section will also include any recommendations that may maximise sustainability benefits.

3.2 How are effects identified?

The majority of the effects highlighted within the appraisal use the 2014 MLP SA as a starting point, however it should be acknowledged that the approach taken in that SA highlighted significant effects on the basis of a Policy, or an element of the Policy, being merely successful in either mitigating effects, or responding to national policy requirements. For example, a Policy's successful mitigation of effects on the historic environment would not yield 'significant positive effects' rather 'no effects'. The SA at this point, in responding to best practice, highlights effects as 'significant' only where they will lead to benefits that can be considered so as a result of the Policy. There is also a stronger focus within this SA to use evidence as a starting point, rather than professional opinion or notional planning judgements at the strategic level.

For this reason, the effects of the adopted 2014 MLP's SA and the SA of the Plan as amended, are more difficult to compare due to this methodological change. It should therefore be noted that comparisons can only be made by looking at the commentaries analysing the effects of each Policy, and the Plan as a whole, rather than the use of the

symbols included within the appraisal. Where effects have changed for a Policy, or the whole Plan, then these will be signposted and set out within that commentary.

3.3 Approach to Assessing Sites for Mineral Extraction

Following a review of the comments received to the previous Regulation 18 MLP Review consultation in 2021, as well as a further review of evidence and the current rate of plan formation, it has become evident that the emerging MLP would likely fail the NPPF 'Tests of Soundness' if it did not allocate additional sites. On that basis, an informal public engagement exercise took place on Policy S6 of the MLP in February to March 2022. Policy S6 is the policy that quantifies the need for sand and gravel across the plan period, which is the main mineral excavated in Essex. This engagement set out the revised approach, which was to ensure that a sufficient supply of sand and gravel has been properly planned for to the end of the MLP period which included the allocation of new sand and gravel sites within Essex. Accordingly, a Call for Sites exercise was undertaken alongside the informal engagement which resulted in the submission of numerous sites to be assessed for their suitability to contribute to future supplies of sand and gravel.

The SA is required to assess the potential effects of the sites submitted for consideration as mineral extraction allocations within the MLP. Such an assessment can ensure that sustainability is a key consideration within the MPA's site selection process and also that suitable policy requirements exist to ensure that the potential impacts associated with any sites' allocation can and will be mitigated.

An SA site assessment framework has been devised for this SA, introducing detailed site-specific criteria relevant to the themes of the above Sustainability Objectives in order to identify any indicative sustainability concerns and merits. The framework draws on Plan evidence and site submission information (as submitted through the call-for-sites process). The framework allows distinctions to be identified that allow the comparison and analysis of sites in a fair and consistent manner. The SA site assessment framework is included in the table below.

Table 5: Proposed SA Site Assessment Framework for assessing candidate sites for mineral allocation

SA Objective	Source	Significant Positive Effects	Positive Effects	Uncertain Effects	Neutral Effects or No Effect	Negative Effects	Significantly Negative Effects
1a) To protect and enhance biodiversity through Essex and beyond.	Place Services' Ecology specialists – MLP Site Assessment Report	Significant positive effects regarding biodiversity are more appropriately addressed under SA Objective 12.	Positive effects regarding biodiversity are more appropriately addressed under SA Objective 12.	The site could potentially impact on the natural environment including biodiversity and ecological conditions for habitats and species, including the effect on national or local designations.	The site is not likely to have an unacceptable impact/effect and/or unacceptable cumulative impact on the natural environment including biodiversity and ecological conditions for habitats and species, including the effect on national or local designations.	The site could have an unacceptable impact on the natural environment including biodiversity and ecological conditions for habitats and species, including the effect on national or local designations.	The site is within/ or adjacent to a nationally designated habitat
1b) To protect and enhance biodiversity through Essex and beyond.	MLP HRA (2024)	Significant positive effects regarding biodiversity are more appropriately addressed under SA Objective 12.	Positive effects regarding biodiversity are more appropriately addressed under SA Objective 12.	HRA & AA stage: The adverse effects on the integrity of internationally or nationally important wildlife sites are avoidable.	HRA stage: Likely Significant Effects screened out AA stage: There are no adverse effects on the integrity of internationally or nationally important wildlife sites	HRA stage: Likely Significant Effects screened in (pathways and functionally linked land) AA stage: The adverse effects on the integrity of internationally or nationally important	HRA stage: Likely Significant Effects screened in (disturbance) AA stage: The site is within/ or in close proximity to an internationally designated habitat And / or

SA Objective	Source	Significant Positive Effects	Positive Effects	Uncertain Effects	Neutral Effects or No Effect	Negative Effects	Significantly Negative Effects
						wildlife sites are mostly unavoidable.	The adverse effects on the integrity of internationally or nationally important wildlife sites are unavoidable.
2) To maintain and enhance water quality and resources.	MAGIC Map	It is not considered possible for significant positive impacts to be ensured, as the criterion is focused on the conservation of water in the first instance.	It is not considered possible for positive impacts to be ensured, as the criterion is focused on the conservation of water in the first instance.	The site is partly within a Source Protection Zone. Or The site is outside groundwater protection zones (SPZs) but sits above principle or secondary aquifers. Or More detailed assessment required.	There are no known constraints regarding surface or groundwater.	The site is located within a ground water Source Protection Zone. Or There are known constraints regarding surface water.	The site is located within a ground water Source Protection Zone. And There are known constraints regarding surface water.
3) To minimise the risk of flooding.	ECC's Flooding risk assessments – MLP Site	Restoration proposal would lead to outstanding benefits through restoration,	Restoration proposals would lead to marginal benefits through restoration,	The site is in part within FRZ2 or FRZ3 and has high – medium flood risk for	The site is either entirely or predominantly within FRZ1 and has a low flood risk	The site is pre-dominantly (i.e. 50% or over) within FRZ2 or FRZ3 and has high flood risk	The site is pre-dominantly (i.e. 50% or over) within FRZ3 and has high flood risk for both

SA Objective	Source	Significant Positive Effects	Positive Effects	Uncertain Effects	Neutral Effects or No Effect	Negative Effects	Significantly Negative Effects
	Assessment Report	regarding flood water storage or alleviation.	regarding flood water storage or alleviation.	EITHER / BOTH surface water and groundwater (in SFRA) and is considered 'water compatible' development	for surface water and groundwater (in SFRA).	for EITHER surface water and groundwater (in SFRA) and is not 'water compatible' development	surface water and groundwater (in SFRA) and is not 'water compatible' development
4) To encourage the sustainable use of land and protection of soils, including the best and most versatile agricultural land.	ALC Maps / call-for-sites material	The proposal is not on land in agricultural use or has no intrinsic value (Grade 4 or 5 ALC) And, where relevant Restoration proposals intended to improve original (ALC) soil quality grading.	The proposal is not on land in agricultural use or has no intrinsic value (Grade 4 or 5 ALC) And, where relevant Restoration proposals intended to reinstate original (ALC) soil quality grading.	Grade 3 ALC Or Where relevant in specific circumstances	The proposal is not on land in agricultural use and, or has no intrinsic value (Grade 4 or 5 ALC)	Grade 2 ALC	Grade 1 ALC
5) To promote the minerals supply hierarchy and where mineral waste is	ECC planning website	The site significantly contributes to meeting mineral supply needs	The site is for mineral extraction not considered significant in	The site is for mineral extraction, however the proposal has issues with policy compliance (of the	All other proposals	Not Applicable	Not Applicable

SA Objective	Source	Significant Positive Effects	Positive Effects	Uncertain Effects	Neutral Effects or No Effect	Negative Effects	Significantly Negative Effects
produced, to promote the movement of minerals waste up the waste management hierarchy.			meeting mineral supply needs	adopted MLP and emerging policies) or previous proposals have been refused planning permission (planning history).			
6) To safeguard and where possible improve air quality.	AQMA Maps (District level)	It is not considered possible for significant positive impacts to be ensured, as the criterion is focused on the maintenance of air quality in the first instance.	It is not considered possible for positive impacts to be ensured, as the criterion is focused on the maintenance of air quality in the first instance.	Where relevant.	There are no Air Quality Management Areas in the immediate area.	The site is within close proximity to an Air Quality Management Area.	The site is within an Air Quality Management Area and will result in additional road transport movements.
7) To minimise net emissions of greenhouse gases and increase adaptability to climate change.	N/A	Not Applicable	Not Applicable	Not Applicable	All proposals - no impact identified at this stage as impacts would only be identifiable at the planning application stage and in adherence to	Not Applicable	Not Applicable

SA Objective	Source	Significant Positive Effects	Positive Effects	Uncertain Effects	Neutral Effects or No Effect	Negative Effects	Significantly Negative Effects
					relevant Plan policies.		
8a) To avoid, and if this is not possible minimise impacts, both direct, and indirect (e.g. through changes in setting), on the significance of the historic environment, both above and below ground. (Archaeology)	Place Services' Historic Environment specialists – MLP Site Assessment Report	It is not considered possible to ensure significant positive effects due to the type and nature of minerals development.	The development of the site would enhance the significance of a heritage asset.	The development of this site will cause harm (or limited harm) to a heritage asset (s) however, this is likely to be able to be mitigated through archaeological investigation, or controlled by an appropriate condition.	The development of this site will have no impact on the heritage asset and its significance.	The development of this site will cause harm to a heritage asset (s) and this harm is at a MID level. There may be options, through mitigation, to reduce this harm.	The development of this site will cause significant harm to a heritage asset (s) and this harm is at the HIGHEST or HIGH level. There are likely no options for mitigation.
8b) To avoid, and if this is not possible minimise impacts, both direct, and indirect (e.g. through changes in	Place Services' Historic Environment specialists – MLP Site Assessment Report	It is not considered possible to ensure significant positive effects due to the type and nature of minerals development.	The development of the site would enhance the significance of a heritage asset.	The development of this site will cause harm (or limited harm) to a heritage asset (s) however, this is likely to be able to be mitigated through	The development of this site will have no impact on the heritage asset and its significance.	The development of this site will cause harm to a heritage asset (s) and this harm is at a MID level. There may be options, through	The development of this site will cause significant harm to a heritage asset (s) and this harm is at the HIGHEST or HIGH level. There

SA Objective	Source	Significant Positive Effects	Positive Effects	Uncertain Effects	Neutral Effects or No Effect	Negative Effects	Significantly Negative Effects
setting), on the significance of the historic environment, both above and below ground. (Historic Buildings)				archaeological investigation, or controlled by an appropriate condition.		mitigation, to reduce this harm.	are likely no options for mitigation.
9) To protect and enhance the quality and character of landscapes, including the Metropolitan Green Belt.	Place Services' Landscape specialists – MLP Site Assessment Report	It is not considered possible to ensure significant positive effects due to the type and nature of minerals development.	It is not considered possible to ensure positive effects due to the type and nature of minerals development.	Landscape and / or visual characteristics of the assessment unit are susceptible to change and / or its values are medium / low through to high / medium and / or it may have some potential to accommodate the relevant type of development in some defined situations without significant	Landscape and / or visual characteristics of the assessment unit are robust or degraded and are not susceptible to change and / or its values are low and it can accommodate the relevant type of development without significant character change or adverse effects. Thresholds for significant change are very high.	Landscape and /or visual characteristics of the assessment unit are susceptible to change and / or its values are medium through to high. It may be able to accommodate the relevant type of development but only in limited situations without significant character change or adverse effects if defined in the relevant land parcel summary.	Landscape and / or visual characteristics of the assessment unit are very susceptible to change and / or its values are high and it is unable to accommodate the relevant type of development without significant character change or adverse effects. Thresholds for significant change are very low.

SA Objective	Source	Significant Positive Effects	Positive Effects	Uncertain Effects	Neutral Effects or No Effect	Negative Effects	Significantly Negative Effects
				character change or adverse effects. Thresholds for significant change are intermediate to high.		Thresholds for significant change are low.	
10) To maximise opportunities for economic development, including jobs, arising from minerals activities.	Call-for-Sites submission material	It is considered that no single site or proposal would lead to a significant positive effect on employment opportunities on a countywide scale.	The proposal will lead to job creation or retention on site.	The site could conflict with neighbouring employment uses. Or Employment numbers not provided.	The proposal is unrelated to activities associated with job creation or retention.	The site is proposed for an alternative employment use within a Local Plan or there is an unimplemented permission for an employment use.	The site is existing or safeguarded employment land in the relevant district Local Plan or has planning permission for employment use.
11) To promote improvements in the sustainable use of minerals.	N/A	Not Applicable	Not Applicable	Not Applicable	All proposals - no impact identified as this Sustainability Objective is considered a policy consideration only.	Not Applicable	Not Applicable
12) To achieve restoration and the aftercare of all mineral	Call-for-Sites submission material	Restoration proposal would lead to outstanding benefits through	Proposals would lead to minimum policy standards (as established in	Further information required	Proposals that do not require or	Restoration scheme is considered unsuitable.	It is not considered that the nature of minerals proposals would be deemed

SA Objective	Source	Significant Positive Effects	Positive Effects	Uncertain Effects	Neutral Effects or No Effect	Negative Effects	Significantly Negative Effects
sites that offer the best sustainability benefits.		restoration (including but not limited to: biodiversity net gain, green infrastructure, recreation, flood water storage or the storage of water for agriculture or industry gain).	the MLP) in regard to (e.g.) biodiversity value or to social and, or economic gains.		involve a need for restoration		capable of having the potential for significant negative impacts.
13) To reduce the transportation of minerals, road congestion, and promote the movement of minerals using sustainable transport.	ECC's Transport specialists – MLP Site Assessment Report	It is not considered possible to ensure significant positive effects due to the type and nature of minerals development.	It is not considered possible to ensure positive effects due to the type and nature of minerals development.	The impact or issue is moderate / minor and this is likely be made acceptable by mitigation. Likely to require medium / low levels of mitigation in order to make the site / transport route acceptable in highway terms	There are no impacts or issues that require mitigation. Site / transport route acceptable. Mitigation not required.	The impact or issue is major but this may be made acceptable by mitigation. Likely to require high levels of mitigation in order to make the site / transport route acceptable in highway terms.	The impact or issue is so severe that information currently available suggests that a serious impact will result from the development of the Site which will be difficult to mitigate to an acceptable level. Mitigation in order to make the site / transport route acceptable in

SA Objective	Source	Significant Positive Effects	Positive Effects	Uncertain Effects	Neutral Effects or No Effect	Negative Effects	Significantly Negative Effects
							highway terms is difficult.
14) To protect and where possible enhance human health and well-being.	Aerial mapping / MLP Site Assessment Report	It is not considered possible for significant positive impacts to be ensured, as the criterion is focused on the minimisation of related impacts in the first instance.	It is not considered possible for positive impacts to be ensured, as the criterion is focused on the minimisation of related impacts in the first instance.	Properties within 250m of the proposed and impacts can be mitigated	No properties within 250m of the site	Properties within 250m of the site and impacts cannot be easily mitigated	Any properties within 250m of the site with no capability of mitigation
15) To minimise any nuisance and impact on local amenity resulting from minerals activities	ECC's PRoW specialists – MLP Site Assessment Report / Call-for-Sites submission material	Restoration proposal would lead to outstanding benefits through restoration regarding accessible open space or recreation or sports provision.	Restoration proposal would lead to small benefits through restoration regarding accessible open space or recreation or sports provision.	A PRoW(s) or and, or bridleway and, or byway(s) borders the proposal site.	There is no conflict between the proposal and any PRoW(s) or bridleway(s) or byway(s).	The proposal would require the diversion of a PRoW(s) and, or bridleway(s) and, or byway(s) Or The proposal would lead to the loss of a PRoW(s) or bridleway(s) or byway(s).	The proposal would lead to the loss of multiple PRoWs or bridleways or byways.

4. The Assessment of the Minerals Local Plan (Policies)

4.1 Introduction to this Section

This section sets out the appraisal of the Minerals Local Plan, as amended. Assessment of the Plan's content has been undertaken against the sustainability objectives and framework devised at the scoping stage.

This section assesses the Plan's (and where relevant reasonable alternative approaches to):

- Spatial Vision;
- Aims and Strategic Objectives;
- Strategic Policies;
- The Minerals Provision Figure;
- Preferred Minerals Sites for Primary Mineral Extraction; and
- Development Management Policies.

4.2 Assessment of The Strategy

4.2.1 The Spatial Vision

4.2.1.1 What amendments have been proposed since the 2014 MLP?

The Plan proposes an amendment that removes named settlements within the Plan area that were considered 'main growth centres'; flexible wording is proposed in replacement that allows the co-ordination of the supply of minerals to better reflect growth locations as identified within district / borough authorities' Local Plans. Additionally, wording pertaining to the Plan's existing position that proposals for borrow pits and minerals infrastructure (linked to significant (non-mineral) infrastructure projects) will be considered on a case-by-case basis, is included within the Vision. This amendment, covered within Policy S6 as adopted and not proposed for amendment, is included for thoroughness here and is not a new approach introduced through the Plan's review.

The Plan lastly introduces amendments to the Spatial Vision in regard to restoration and after-use. An amendment proposes a focus of after-use towards integrating the cross-cutting benefits of green and blue infrastructure and natural capital growth, rather than merely ensuring local environment enhancements. Further, the amendment seeks restoration proposals to reflect local priorities in existing or emerging green and blue infrastructure strategies, where they exist, to better align with the Development Plan.

4.2.1.2 Are there any new alternatives to consider?

The MLP 2014 SA explored alternatives to the Spatial Vision that reflected wording changes and the progression of the Spatial Vision from the Issues and Options stage to the Pre-Submission Draft. No alternatives that sought a distinctly different approach to the Plan than that iterated in the adopted MLP 2014 were explored, with those being more relevant for exploration within the appraisal of the Plan's thematic policies.

The amendments proposed within this Regulation 18 iteration of the Plan are similarly not considered distinctly different from the adopted approach, reflecting amendments to policy elsewhere in the MLP and aspirations for a more holistic approach to green and blue infrastructure across the Plan area. It is not considered that the Spatial Vision would warrant the exploration of any further alternatives to what is proposed; the amended Spatial Vision reflects the requirements of minerals planning as set out within the NPPF and PPG. No alternatives are therefore identified that can be considered 'reasonable' i.e. realistic, deliverable and sufficiently distinct from the proposed approach.

4.2.1.3 Assessment of the Spatial Vision

Effect	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
S/T	0	0	0	0	++	0	0	0	0	+	++	0	0	0	0
M/T	0	0	0	0	++	0	0	0	0	+	++	0	0	0	0
L/T	+	0	0	0	++	0	0	0	0	0	++	++	0	+	0

The Plan's Strategic Vision effectively seeks to maximise benefits, within the remit of the Plan, and to mitigate any negative ancillary effects identified as relevant to the Plan area and minerals planning. In those instances where there is a pledge to ensure mitigation, no effects can be assumed as forthcoming from the Vision alone; much depends on the successful implementation of the Plan's thematic policies. These are explored elsewhere within this SA in the assessment of policies and whole Plan conclusions.

Significant short-long term positive effects are highlighted for the Vision's stance addressing the remit of the Plan and this SA's relevant objectives; on promoting the minerals supply hierarchy and where mineral waste is produced, to promote the movement of minerals waste up the waste management hierarchy. This is also the case regarding ensuring the sustainable use of minerals, as far as this can be influenced by a strategic plan. A long term significant positive effect is also highlighted regarding ensuring the best sustainability benefits from restoration and after-use of mineral extraction sites. This is addressed by the proposed amendment that ensures restoration proposals reflect local priorities in existing or emerging green and blue infrastructure strategies where they exist. This ensures better alignment with the development plans of the Local Planning Authorities (LPAs) within Essex and reflects updated guidance and best practice on the multiple benefits of a holistic, cross-boundary approach to green and blue infrastructure. To this extent minor positive effects are also highlighted for biodiversity and human health / wellbeing.

A minor positive effect is also highlighted regarding employment opportunities relevant to minerals activities, through the Vision's increased (through amendment) support for the minerals industry through flexibility regarding forthcoming proposals.

4.2.1.4 Mitigation measures proposed to minimise identified effects

No mitigation measures are proposed to the Plan's Vision at this stage of the SA.

4.2.2 Aims and Strategic Objectives

4.2.2.1 What amendments have been proposed since the 2014 MLP?

Aside from typological amendments and those that better reflect the position in terms of sub-regional plan making, a number of amendments are proposed. An amended objective better articulates the 'plan-led' approach to future provision, providing further reassurance for Essex residents, the minerals industry, key stakeholders and future developers that future needs can be met, whilst also providing a degree of certainty as to where minerals development will take place. Further emphasis is also given in regard to ensuring sustainable minerals transportation, through seeking to minimise carbon emissions associated by the transportation of mineral and also promoting the provision of multifunctional green and blue infrastructure and natural capital growth through restoration.

Further, the Aims and Strategic Objectives are expanded to offer more detail on safeguarding. This is now specified as required in order to ensure that the practicality of prior extraction of mineral is appropriately assessed when other necessary non-mineral development might unnecessarily sterilise viable mineral resources. Existing, permitted and allocated mineral infrastructure will also be safeguarded.

In regard to the Plan's aim to provide for a steady and adequate supply of primary minerals, an amendment is proposed that removes the requirement to meet East of England Aggregates Working Party targets and includes that need to maintain appropriate landbanks (having regard to past levels of sales, likely future demand and the sub-national apportionment requirement, as monitored through the Local Aggregates Assessment and Authority Monitoring Reports). Participating in the relevant Aggregates Working Party and taking its views into account is included as an objective.

4.2.2.2 Are there any new alternatives to consider?

The MLP 2014 SA explored alternatives to the Plan's Aims and Objectives that reflected wording changes and the progression of the Aims and Objectives from the Issues and Options stage to the Pre-Submission Draft. No alternatives that sought a distinctly different approach to the Plan than that iterated in the adopted MLP 2014 were explored, with those being more relevant for exploration within the appraisal of the Plan's thematic policies. It is considered that the Aims and Objectives as drafted post-Review are in conformity with the objectives of both the NPPF and the PPG.

Regarding the steady supply of primary minerals, the amendment is more in line with and better accommodates those provisions of the NPPF. This more accurately reflects the

approach taken by the MPA with regard to providing a steady and adequate supply of mineral and as such, no alternatives have been identified that could be considered distinctly different from the proposed approach yet still realistic, deliverable and in accordance with national guidance.

4.2.2.3 Assessment of the Aims and Strategic Objectives

Plan Aim	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1.	0	0	0	✓	✓	0	0	0	✓	✓	✓	0	✓	0	?
2.	0	0	0	0	0	0	✓	0	?	0	0	✓	✓	0	0
3.	0	✓	✓	✓	0	✓	0	0	0	0	0	0	✓	✓	✓
4.	0	0	0	0	✓	0	0	0	✓	0	✓	0	0	0	0
5.	0	0	0	✓	0	0	0	0	0	0	✓	0	0	0	0
6.	?	0	0	0	✓	0	0	?	?	0	✓	0	0	?	?
7.	✓	0	0	0	0	0	0	✓	✓	0	0	✓	0	✓	✓
8.	0	0	0	0	0	✓	0	0	0	✓	✓	0	✓	?	?

The MLP Aims and Objectives are elaborated on within the policy framework set out in the MLP and therefore the assessment of the Plan's Aims and Objectives has been undertaken slightly differently to the rest of the Plan's policies and Vision. The assessment undertaken in this report acts as a checklist as to whether the Plan effectively addresses the sustainability issues of the Plan area; in other words, are the Plan's objectives compatible with the sustainability objectives of this SA. A 'tick' signifies compatibility, whereas a question mark indicates that a Sustainability Objective theme is not necessarily covered by a Plan objective.

The aims and strategic objectives of the MLP post-review are considered to ensure that all of the Sustainability Objectives are covered by one of the Plan's objectives. Where uncertain impacts are highlighted, the majority of these will be rectified in other elements of the Plan where site specific characteristics and impacts are more relevant, such as site allocation criteria and assessments and development management policies.

4.2.2.4 Mitigation measures proposed to minimise identified effects

No mitigation measures are proposed to the Plan's Aims and Objectives at this stage of the SA.

4.3 Assessment of the Strategic Policies

4.3.1 Policy S1 Presumption in Favour of Sustainable Development

4.3.1.1 What amendments have been proposed since the 2014 MLP?

Aside from a single change that amends a paragraph reference, no significant amendments are proposed for this Policy.

4.3.1.2 Are there any new alternatives to consider?

It is acknowledged that the inclusion of this policy is no longer required, as the Plan incorporates the notion of sustainable development through the thematic policies and their adherence to national requirements. As a result of this the alternative of deleting the Policy is not considered distinctly different, in terms of yielding any direct sustainability effects, than the approach of retaining its inclusion.

4.3.1.3 Assessment of Policy S1

Effect	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
S/T	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M/T	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
L/T	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

There will be no direct impacts on any of the sustainability objectives as a result of Policy S1; the inclusion or omission of the Policy will have little impact in real terms on the process of determining mineral based applications in the Plan area. The Plan's detailed policies seek to underpin the ethos of Policy S1 through addressing separate thematic elements of sustainable development.

4.3.1.4 Mitigation measures proposed to minimise identified effects

No mitigation measures are proposed to the Plan's Policy S1 at this stage of the SA.

4.3.2 The Strategy and Policy S2 Strategic Priorities for Minerals Development

4.3.2.1 What amendments have been proposed since the 2014 MLP?

No amendments are proposed for the Plan's Strategy. This remains as adopted in the

adopted 2014 MLP.

The amendments proposed for Policy S2 are largely designed to offer further clarity, although added emphasis is included within the Policy regarding health and wellbeing, and public safety. A common thread throughout the MLP is the focus on biodiversity net-gains and ensuring a joined-up approach between restoration proposals and district / borough authorities' Green and Blue Infrastructure Strategies where they exist; this is reiterated through Policy S2 amendments. Lastly, an amendment exists to reiterate the approach to safeguard primary and secondary processing facilities, with safeguarding provisions linked to the length of mineral operations at the host site where relevant. This clarifies the approach already set out within the adopted MLP.

4.3.2.2 Are there any new alternatives to consider?

The Strategy of the Plan remains as adopted and reflects the Plan as a whole. As this Strategy was adopted in 2014, underpins the Plan's policies and site allocations, and was subject to a plan-making process that explored other strategic alternatives, it is not considered necessary to identify further alternatives at this stage. The Strategy position does not change as a result of any of the amendments proposed within the Plan.

It is considered that Policy S2 is in conformity with the objectives of the NPPF and PPG, with no omissions which could result in any noncompliance with national policy. It is acknowledged that the amendments to Policy S2, as Strategic Priorities, will be covered in more depth and detail within other thematic policies within the Plan. With this in mind, no alternatives are identified for Policy S2, with alternatives to other policies explored where necessary and reasonable.

4.3.2.3 Assessment of the Plan's 'Strategy' and Policy S2

Effect	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
S/T	0	0	0	0	++	0	0	0	0	+	++	0	0	0	0
M/T	0	0	0	0	++	0	0	0	0	+	++	0	0	0	0
L/T	+	0	0	0	++	0	0	0	0	0	++	++	0	+	0

The Strategy of the Plan remains broadly as adopted, aside from some typographical changes. The Strategy is:

'To provide for the best possible geographic dispersal of sand and gravel sites across the County, to support key areas of growth and development, whilst accepting that due to geological factors the majority of mineral extraction will be located in the central and north eastern parts of the County.

To counter geographic imbalance, a focus is placed on minimising mineral miles and ensuring that mineral traffic accesses the main network as efficiently as possible

Progressive working and restoration is required to reduce the overall impact of mineral working on the environment and minimise the reduction of land in agricultural use. After-uses will provide enhanced variety and quality of life features, and therefore result in long-term benefit to the environment and its communities. Infilling of the mineral void by waste materials shall only be at a scale considered necessary to achieve a beneficial restoration.'

As stated above in the discussion surrounding alternatives, the Plan cannot be considered to alter this position through any of its proposed amendments; none allocate new sites for extraction or alter locational criteria. The approach of removing the names of specific settlements in favour of a more flexible approach allows sites to respond to supporting 'key areas of growth' should the 'key areas' change throughout the Plan period.

Significant effects are highlighted for those sustainability objectives related to promoting the minerals supply hierarchy and the sustainable use of minerals. This is due to the strategic priorities reflecting the remit of the Plan, and through the enhanced safeguarding amendments proposed. Additional minor positive effects are highlighted regarding sustainability objectives related to ensuring and safeguarding those jobs deriving from minerals activities.

The amendments to Policy S2 are considered likely to enhance the long-term positive effects highlighted within the 2014 MLP SA regarding biodiversity within the Plan area, in response to the requirement for restoration to be better aligned with local Green and Blue Infrastructure Strategies, and net-gains being sought. The strength of these effects are unlikely to be significant from the Plan alone however could be significant holistically with and in alignment to those strategies at the LPA level. Effects are predicted to be significant in the long term however through the amendments and the retained priorities related to ensuring the best possible sustainable benefits from restoration proposals. This will also likely offer some long term positive effect regarding human health and wellbeing, where net gains are sought alongside the notional benefits of green infrastructure improvements. At the strategic scale effects are not considered significant however, as much depends on other schemes and proposals across the Plan area.

4.3.2.4 Mitigation measures proposed to minimise identified effects

No mitigation measures are proposed to the Plan's Policy S2 at this stage of the SA.

4.3.3 Policy S3 Climate Change

4.3.3.1 What amendments have been proposed since the 2014 MLP?

The proposed amendments to the Policy relate to applications for minerals development (now including extensions to existing sites) to minimise greenhouse gas emissions for the lifetime of the development. In minimising, proposals will need to have regard to site operation as well as siting, location design and transport arrangements.

Proposals will also need to take account of landform, layout, building orientation, massing and landscaping to minimise energy consumption, and avoiding solar gain in the summer. Further, regarding restoration and after-use, compatibility with existing Local Plans and

Green Infrastructure Strategies is required for flood resilience, countryside enhancements and green and blue infrastructure. The Mineral Planning Authority will support minerals development which increases the resilience of communities and infrastructure to climate change impacts.

Since the 2021 Plan 'Review' consultation, the Policy and supporting text has been amended to recognise that the move towards net zero-carbon development requires comprehensive monitoring of energy demand and carbon emissions to ensure that planning commitments are being delivered. The Policy is also updated to require any proposed permanent buildings to be net zero carbon in operation and reduce embodied carbon emissions. Proposals should also be supported by a Climate Change Statement which outlines adherence to Policy S3.

4.3.3.2 Are there any new alternatives to consider?

There are not considered to be any omissions within Policy S3 which would result in it being non-compliant with national policy. The amendments proposed to the Policy seek more information to be submitted on a wider range of matters regarding emissions and mitigation. Overall, it is considered that any deviation from the Policy (as amended) that remains realistic, reasonable and in adherence to national policy would not be 'distinctly different' to warrant consideration as an alternative within this SA.

4.3.3.3 Assessment of Policy S3

Effect	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
S/T	0	+	0	0	0	0	++	0	0	0	0	+	+	0	0
M/T	0	+	0	0	0	0	++	0	0	0	0	+	+	0	0
L/T	+	+	0	0	0	0	++	0	0	0	0	+	0	0	0

The amendments to the Policy make improvements to the level of detail required of planning applications in regard to greenhouse gas minimisation. Positive effects are highlighted for those Sustainability Objectives related to biodiversity (in the long term, through restoration ensuring net gains), water resources (indirectly, through flood risk requirements), a flexible approach to restoration ensuring maximum sustainability benefits in alignment to LPA Local Plan aims and strategies, and ensuring vehicle emissions are reduced in the lifetime (short-medium) term of mineral workings.

Significant positive effects are predicted regarding minimising greenhouse gas emissions and adaptability to climate change. Previous iterations of the SA identified that effects would not be considered significant as the maximum possible benefits were related to offsetting, in regard to the fact that many minerals activities are temporary in nature, and would be unlikely through their nature to ensure any long term and wider benefits regarding renewable energy generation. In the context of the Plan, and its remit, further positive effects are identified at this stage however, through new Policy wording that requires all new permanent

buildings associated with proposals to designed and built to be Net Zero Carbon in operation and generate renewable energy on-site to at least match annual energy use.

4.3.3.4 Mitigation measures proposed to minimise identified effects

No mitigation measures are proposed to the Plan's Policy S3 at this stage of the SA.

4.3.4 Policy S4 Reducing the Use of Mineral Resources

4.3.4.1 What amendments have been proposed since the 2014 MLP?

Amendments to Policy S4, regarding reducing the use of mineral resources, seek the removal of wording 'this is to ensure both a reduction in the need for primary minerals and the amount of construction, demolition, and excavation wastes going to landfill. This will be supported by joint working with strategic partners.' The deletion of this text does not alter the general ethos of the Policy, which is more considered more appropriately included within supporting text, with all four criteria included within the Policy remaining unchanged. An amendment that seeks applications to 'demonstrate' rather than 'ensure' the policy criteria will be met, clarifies that evidence is expected to be submitted to confirm compliance with the Policy.

4.3.4.2 Are there any new alternatives to consider?

Overall, it is considered that any deviation from the Policy (as amended) that remains realistic, reasonable and in adherence to national policy would not be 'distinctly different' to warrant consideration as an alternative within this SA.

4.3.4.3 Assessment of Policy S4

Effect	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
S/T	0	0	0	0	++	0	0	0	0	?	++	0	0	0	0
M/T	0	0	0	0	++	0	0	0	0	?	++	0	0	0	0
L/T	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

The amendments to the Policy can be considered to change the context of the approach in a manner that ensures that more information is received by the MLP at the planning application stage. Rather than just 'ensuring' that minerals waste is minimised, it is proposed that it must now be 'demonstrated' within proposals at the application stage. This allows the MPA to make more informed decisions, which can lead to more positive effects regarding Sustainability Objective 5 in promoting the minerals supply hierarchy in line with the waste hierarchy. Further positive effects will be realised for Sustainability Objective 11 regarding the sustainable use of minerals.

In supporting the minerals supply hierarchy, and in the approach taken within the Policy, jobs

within the industry can be seen to be maintained, however there may be a reduction in those associated with primary extraction through a focus on reducing and re-using minerals in the first instance prior to the need for extraction. Uncertain effects are highlighted as a result, and only identified within the short-medium term in line with extraction periods.

4.3.4.4 Mitigation measures proposed to minimise identified effects

No mitigation measures are proposed to the Plan's Policy S4 at this stage of the SA.

4.3.5 Policy S5 Creating a Network of Aggregate Recycling Facilities and New Transhipment Sites

4.3.5.1 What amendments have been proposed since the 2014 MLP?

The amendments proposed for Policy S5 include the safeguarding of all aggregate recycling sites, as opposed to just existing Strategic Aggregate Recycling Sites, and that facilities will be safeguarded in accordance with the provisions of Policy S9. Another amendment specifies that proposals for new aggregate recycling facilities shall (previously 'should') be located on the main road network in proximity to 'areas of development', rather than the 'key centres of Basildon, Chelmsford, Colchester and Harlow'. Further, a policy criterion within the 2014 MLP included that a preferred location for proposals be 'within major allocated or permitted development areas'. This has since been removed.

Furthermore, the Policy has been amended to include that new applications need to demonstrate that they would not have adverse effects on the integrity of internationally or nationally important wildlife sites. This is proposed as a recommendation of the HRA undertaken for the Plan Review in 2021.

Additionally, the Policy now includes a criteria-based approach to new transhipment sites (wharf and rail depot developments). These criteria are introduced as Essex has no deposits of hard rock, so it relies on imported supplies to serve the County's needs. Most imported mineral comes from the East Midlands and South West regions, and the existing mineral infrastructure which makes this importation possible is a vital feature of the County's mineral supply network. Similarly, such sites are required for the exportation of sand and gravel to areas such as London and the south east. The criteria of the Policy pertaining to transhipment sites was previously included within Policy S9 of the Local Plan.

4.3.5.2 Are there any new alternatives to consider?

The main amendments outlined above have been made to address a perceived inconsistency between the approach of safeguarding 'strategic' aggregate recycling facilities and NPPF Paragraph 204 e) which states that planning policies should, 'safeguard existing, planned and potential sites for…the handling, processing and distribution of substitute, recycled and secondary aggregate material'. The NPPF does not set out a threshold at which to apply this policy and the MPA therefore consider it appropriate to remove reference to strategic sites such that the approach applies to all recycling facilities. This also brings the approach into conformity with the Essex and Southend-on-Sea Waste Local Plan 2017 which makes no distinction between strategic and non-strategic sites in its safeguarding

approach. Due to the intention for modifications to more closely align with the adopted Waste Local Plan (WLP), this reduced the scope for any alternatives that would also ensure NPPF and WLP conformity.

Where an alternative is considered reasonable at this stage is related to the proposed amendment regarding the intention to replace 'the key centres of Basildon, Chelmsford, Colchester, and Harlow' with 'areas of development' in regard to the preferred location of new aggregate recycling facilities. An alternative approach would be to retain the existing adopted Policy wording, as:

- Alternative S5(1): To retain the adopted (2014) Policy wording: 'Proposals for new aggregate recycling facilities, whether non-strategic or in the form of SARS, should be located on the main road network in proximity to the Key Centres of Basildon, Chelmsford, Colchester, and Harlow.'

4.3.5.3 Assessment of Policy S5

Effect: S5	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
S/T	0	0	0	0	++	0	0	0	0	+	++	0	+	0	0
M/T	0	0	0	0	++	0	0	0	0	+	++	0	+	0	0
L/T	0	0	0	0	0	0	0	0	0	0	0	+	+	0	0
Effect: S5(1)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
S/T	0	0	0	0	++	0	0	0	0	+	++	0	?/+	0	0
M/T	0	0	0	0	++	0	0	0	0	+	++	0	?/+	0	0
L/T	0	0	0	0	0	0	0	0	0	0	0	+	?/+	0	0

The Policy is aimed at establishing a network of recycling aggregate sites within the Plan area; necessary for the reuse and recycling of Construction, Demolition and Excavation (CD&E) waste, a key process in the reduction of materials which are disposed to landfill, where such waste is reusable. The Policy can therefore be seen to indirectly reduce the need for mineral extraction, leading to positive outcomes regarding environmental and social tenets of sustainability. Whereas this notional eventuality is explored in more detail within the assessment of other policies and importantly in the 'whole Plan conclusions' of this Report, the Policy correspondingly accords well with Sustainability Objective 5 (regarding the minerals supply and waster hierarchies) and also Sustainability Objective 11 (the sustainable use of minerals), leading to significant positive effects in the lifetime of operational mineral activities

and reducing the environmental impacts of primary extraction. Other criteria for new recycling facilities, and an amendment to necessitate their location on the main road network in proximity to areas of development, can be considered to have positive effects in regard to reducing mineral miles (Sustainability Objective 13).

Further, the proposed amendment to locate such facilities in 'areas of development' rather than the key centres of Basildon, Chelmsford, Colchester and Harlow, responds well to planned and 'un-planned' growth in Essex; reflecting a flexible approach to the Policy's interpretation. The alternative explored, in retaining the adopted policy wording regarding named key settlements in the Plan area, can be seen to have broadly similar effects as the proposed amendment. The amendments to the Policy however can be considered more flexible in response to the direction of growth within the Plan area. Since the adoption of the MLP in 2014, Local Plan settlement hierarchies, as set out within adopted or emerging Local Plans, introduce new settlements that do not necessarily respond to the locations of existing towns or large settlements. Further, as housing growth targets have increased since 2014, key villages within the Plan area are similarly proposed for a larger proportion of growth than previously. As a result, the alternative explored in this Policy assessment has been assessed as having a degree of uncertainty surrounding the transportation of minerals and the notion of reducing mineral miles (Sustainability Objective 13). A degree of potential positive impact is associated with the Policy's introduction of criteria in regard to transhipment sites.

Long term positive effects are highlighted for the proposed and alternative approaches regarding restoration (Sustainability Objective 12). Although the focus of recycling and reusing CD&E waste can be seen to limit the possibility of backfilling mineral voids and restoring landscapes to higher (original) levels, positive effects are highlighted due to the Policy's stance for new recycling facilities; preferred locations are highlighted, including on current mineral workings and landfill sites provided the development does not unduly prejudice the agreed restoration timescale for the site and the use ceases prior to the completion of the site.

Effects related to environmental themes, and those Sustainability Objectives included within this SA, are assessed as being neutral in the context of the Policy in isolation. Although the Policy criteria ensure that new aggregate recycling facilities will be located in commercial areas and on previously developed land (where impacts on environmental themes can be expected to be minimised), effects will be more identifiable on a site-by-site basis where these are related to individual proposals, and the level of information required of submissions in conformity with other Policies within the Plan. It should be noted that the Policy's supporting text recognises the possibility of effects at the site level, particularly regarding effects on Habitats Sites, by including that a project level Habitat Regulation Assessment will be required for any new aggregate recycling sites which fall within a relevant Impact Risk Zone (IRZ).

4.3.5.4 Mitigation measures proposed to minimise identified effects

No mitigation measures are proposed to the Plan's Policy S5 at this stage of the SA.

4.3.6 Policy S6 General Principles for Sand and Gravel Provision

4.3.6.1 What amendments have been proposed since the 2014 MLP?

Within the MLP 2014, the Policy was titled 'Provision for Sand and Gravel Extraction' and set out the amount of mineral that was calculated as being required to equate to the provision of a 'steady and adequate' supply of minerals on an annual basis, and therefore the total amount of mineral required to be provided for over the Plan period. Policy S6 as consulted upon in the MLP Review document (2021) sought to maintain a plan-led system with regard to applications for mineral extraction in order to maintain a seven year sand and gravel landbank, however established that those extraction sites that were allocated as 'reserve sites' in 2014, would now be considered necessary to define as 'preferred sites' that will be required to come forward in the Plan period. The MLP Review document established that no new allocations would be required at that stage.

At this current stage of the MLP, there is now an identified need for new allocations to be considered in order to meet the total amount of sand and gravel required within the Plan period. This equates to an additional 64.56mt of sand and gravel through new site allocations in order to satisfy a forecasted provision (sales) rate of 3.98mtpa.

4.3.6.2 Are there any new alternatives to consider?

The NPPF, at paragraph 219 states that "Mineral Planning Authorities should plan for a steady and adequate supply of aggregates" and then sets out a range of criteria through which such a supply can be quantified. The starting point for this is stated to be an assessment of the last ten years of average sales, before supplementing this with 'other relevant local information', such as household projections, housing completions and major infrastructure projects which are to be located within the Plan area. Further, paragraph 219 d) states that MPAs should take "account of any published National and Sub National Guidelines on future provision which should be used as a guideline when planning for the future demand for and supply of aggregates".

Such guidelines are to be used as "an indication of supply rather than a rigid basis" as per PPG, and the 2014 MLP planned for a need for 4.31mtpa of sand and gravel, an apportionment underpinned by the 'National and Sub National Guidelines for Aggregates Provision in England 2005 – 2020' despite calculated needs being 3.62mtpa (based on ten-year rolling sales at the point of the 2014 MLP Examination in Public (EiP)). At the point of the MLP Review in 2021, Minerals Survey data for the year 1st January to 31st December 2018 (representing the most up to date data at that time) indicated that the rolling ten-year sales average was 3.13mtpa. This was assessed notionally as a reasonable alternative within the SA of the MLP Review in 2021 on the basis that it reflected the (then) ten-year rolling saves average with no uplift or buffer. This alternative is re-assessed at this stage for completeness within Section 4.5 of this Interim SA Report.

At the current stage, the Plan (as supported by the 'Forecasting the Need for Mineral Provision in Essex 2025-2040' topic paper) indicates that other factors / relevant local

information justify a proportional uplift of 20% to be required to the 'base provision rate' (the ten-year rolling sales figure), primarily to accommodate the forecasted rise in housing provision set out in adopted and emerging district local plans. This results in a provision rate of sand and gravel of 3.98mtpa, or a need for 59.7mt of sand and gravel across the 15-year plan period. The Plan adds that to further increase plan flexibility, and in light of the NPPF requirement to maintain a landbank of seven years, the abovementioned topic paper concludes that an additional seven years of provision should be made, such that the landbank at the end of 2040, assuming mineral is extracted at the provision rate of 3.98mtpa, is seven years. This increases the provision to be made to 87.56mt. Removing existing reserves and those expected at Plan adoption, the Local Plan thus identifies a need for an additional 64.56mt of sand and gravel through new site allocations in order to satisfy the forecasted sales rate of 3.98mtpa. The implications of the 3.98mtpa are assessed within Section of 4.5 of this Interim SA Report.

4.3.6.3 Assessment of Policy S6

Effect	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
S/T	0	0	0	0	++	0	0	0	0	+	++	0	0	0	0
M/T	0	0	0	0	++	0	0	0	0	+	++	0	0	0	0
L/T	0	0	0	0	+	0	0	0	0	+	+	0	0	0	0

As set out above, the Policy sets out how the MPA will meet landbank requirements through a plan-led approach. This is in conformity to national policy and guidance; that is, to maintain a seven year landbank. PPG clearly outlines that there is no 'maximum landbank' such that the state of the landbank cannot itself be used to refuse planning permission.

The approach to the allocation of sites is set out within the Plan and is plan-led. This ensures the volume of evidence required of a Local Plan, including this and previous SA Reports that explore cumulative and strategic effects, can influence decision making. This justifies the Policy's approach to resist proposals for primary extraction outside these allocations. Nevertheless, some sites may come forward 'off-plan', and the Policy sets a framework for these sites.

A properly maintained landbank secures and maintains mineral supplies and the approach of the MLP allows for flexibility by recognising a set of circumstances by which sites may come forward 'off-plan'. This approach is considered to be in conformity to the overarching goal of ensuring of a steady and adequate supply of minerals through the Plan period, assuring that supply is adequate to respond to any economic changes within the County. The policy will therefore have significant positive impacts on maximising opportunities for economic development, in this instance resembling non-mineral related growth. The Plan ensures that there will be a supply of minerals that surpasses that of the rolling average of ten years sales data; this approach supports economic growth by allowing for and supporting any economic upturn in the County and responds to sales since the MLP was adopted in 2014; these have been consistently over the ten year sales average which existed at the point of adoption. As

previously mentioned, this buffer will be met through extraction at allocations in future iterations of the Plan and the MPA's site selection methodology is considered effective in ensuring that the most sustainable sites on balance will be allocated.

This SA considers that there will be no direct impacts on any environmental objectives in line with the specific remit of the Policy singularly and without consideration of other Plan policies, future allocations, or the overall conclusions within this SA. It could be perceived that the potential for negative environmental effects (associated with extraction) exists through the buffer included within the plan requirement of 3.98mtpa, however it should be considered that the market will calibrate a position that only that amount which could be sold would be extracted. Further, most of the extracted material in Essex is likely to serve local markets due to the economics of transport, increasing the likelihood of extraction supporting sales.

The Policy will however have significant positive effects on Sustainability Objective 5 (regarding the minerals supply hierarchy) and Sustainability Objective 11 (the sustainable use of minerals). The Policy enables the minerals industry to respond speedily to changes in market demand, and also provide a secure long-term, steady and adequate supply of permitted mineral reserves to justify capital investment in plant, machinery and manufacturing capacity. There will be positive outcomes where the landbank allows for mineral resources to be identified at this stage for a best case economic scenario, which are realised for Sustainability Objective 10, however much depends on growth in Essex and other local considerations such as the timescales of infrastructure projects in the first instance.

4.3.6.4 Mitigation measures proposed to minimise identified effects

No mitigation measures are proposed to the Plan's Policy S6 at this stage of the SA.

4.3.7 Policy S7 Provision for Industrial Minerals

4.3.7.1 What amendments have been proposed since the 2014 MLP?

The amendments proposed regarding Policy S7 remove references to the provision of industrial minerals of various types being made at specific sites and include that appropriate provision for industrial minerals will be based on a consideration of statutory landbank requirements, existing reserves and subsequently non-allocated sites as necessary and where environmentally acceptable.

Regarding chalk specifically, the adopted Policy approach was that 'the small-scale extraction of chalk will only be supported for agricultural and pharmaceutical uses at Newport Quarry' and that extraction for other uses will not be supported. This is proposed for amendment, with the MPA considering that the previous approach is difficult to justify in policy. It is therefore proposed that this statement is removed from Policy S7; instead chalk extraction will be supported in principle where there is a justification or benefit for the release of the site and the proposal would be in conformity with the wider Plan. This is also the case for brickearth extraction.

4.3.7.2 Are there any new alternatives to consider?

The policy as included within the adopted 2014 MLP references provision of each industrial

mineral being made at specific sites, such that it could limit production at those sites only. This is now not considered to be appropriate as a commercial advantage was perceivably created under the 2014 MLP Policy wording. Further, the policy may become undeliverable should it place reliance on a commercial activity that then may not come forward. The revised approach to assessing applications for industrial minerals on non-allocated sites is considered to be more appropriate and flexible.

Regarding chalk extraction, the 2014 MLP specified that the small-scale extraction of chalk will only be supported for agricultural and pharmaceutical uses at Newport Quarry. The amended Policy S7 at this stage ensures a more flexible approach, and notably does not dismiss the suitability of the extraction of chalk at Newport Quarry should a proposal be acceptable. As such, an alternative that retains the 2014 MLP Policy text could not be considered distinctly different from the amended approach to warrant assessment in this SA; both scenarios allow proposals for chalk extraction to be determined on their own merits and in accordance with the policies of the Plan.

As the existing adopted Policy approach is now not considered to be confidently and demonstrably justifiable, the adopted Policy approach to specifying sites is similarly not considered 'reasonable' as an alternative to the amended Policy. No other alternative approaches have been identified to the amended Policy approach that could be considered compliant with national policy and guidance material.

4.3.7.3 Assessment of Policy S7

Effect	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
S/T	0	0	0	0	++	0	0	0	0	+	++	0	0	0	0
M/T	0	0	0	0	++	0	0	0	0	+	++	0	0	0	0
L/T	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

The Policy is not proposed for significant amendment post-Review; sufficient allocations have been made to satisfy the statutory landbank requirements for silica sand, and further allocations were made at each of the two brick clay extraction sites which increased their reserves to in excess of 25 years prior to adoption of the MLP in 2014. Any proposals for chalk extraction will need to obtain planning permission to be forthcoming, with any proposals subject to criteria regarding the identification of need and environmental acceptability.

This SA considers that there will be no direct impacts on any environmental objectives in line with the specific remit of the Policy without consideration of other Plan policies or assessments required through those policies. Maintaining adequate landbanks for silica sand and brick clay extraction directly accords with the objectives of promoting the minerals supply hierarchy and improving the sustainable use of minerals (Sustainability Objectives 5 and 11 respectively). A properly maintained landbank secures and maintains mineral supplies. This is in conformity of the overarching goal of the Minerals Supply Hierarchy and ensuring a steady and adequate supply of minerals through the plan period.

The maintenance of the landbanks will ensure that there is an adequate supply of industrial materials to support economic growth in the County, affording positive effects on Sustainability Objective 10. No long term effects have been identified for this policy as this SA considers this period relevant to restoration and after-use, which is covered through other Plan policies. Post-2029, new sites will be needed, or extensions to existing sites, through a new iteration of the Minerals Local Plan. This is considered to be beyond the Plan period.

4.3.7.4 Mitigation measures proposed to minimise identified effects

No mitigation measures are proposed to the Plan's Policy S7 at this stage of the SA.

4.3.8 Policy S8 Safeguarding Mineral Resources

4.3.8.1 What amendments have been proposed since the 2014 MLP?

Proposed amendments to the Policy focus on enhancing its clarity and ensuring a more uniform approach to the process than previously set out. These increase the level of information regarding prior extraction and how it is to be approached.

A Mineral Resource Assessment will set out whether it is viable to extract the minerals within the context of the non-mineral development as a whole, and such an assessment will be required of non-mineral development where certain thresholds are met. Although the broad concept is an existing consideration in the adopted 2014 MLP, an amendment requiring the explicit consideration of whole development viability is a new inclusion that is proposed. Further, development proposals within an MSA and/or within an MCA, which have the potential to sterilise land within an MSA, will be expected to assess the practicality of prior extraction to support the development being applied for, regardless of any threshold.

If it is assessed that prior extraction is practical or environmentally feasible, applications are to set out the methodology for the prior extraction proposed. If the assessment concludes otherwise, applications are to provide sufficient justification as to why prior extraction is neither practical or environmentally feasible and justify why the need for the development outweighs the principles of mineral safeguarding as part of supporting information. The relevant Local Planning Authority should also address this matter as part of its decision.

4.3.8.2 Are there any new alternatives to consider?

As set out above, amendments ensure a higher degree of focus is given to prior extraction on non-mineral developments, which is proposed to be required where environmentally feasible and practical in the context of the development as a whole. This is a change in approach from the adopted MLP 2014 Policy, and the original Policy wording as adopted remains 'reasonable' in so far as it is now an alternative approach to that which is amended through the Plan review. To that extent, the following alternative is identified and assessed within this SA:

- Alternative (ALT1): To only 'consider' prior extraction, rather than specifically 'require' it if relevant tests are met.

The Policy seeks to retain the inclusion of consultation being required for all planning applications for development on a site located within an MSA and/or MCA that would have the

potential to sterilise 5ha or more for sand and gravel. It is considered necessary that the use of thresholds (and of varying sizes) are explored within this SA. These are set out for assessment as:

- Alternative (ALT2): To remove the threshold of 5ha for sand and gravel.
- Alternative (ALT3): To lower the threshold for sand and gravel below 5ha (assessed notionally).
- Alternative (ALT4): To raise the threshold for sand and gravel above 5ha (assessed notionally).

4.3.8.3 Assessment of Policy S8 and Alternatives ALT1-4

Effect: S8	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
S/T	0	0	0	++	+	0	0	0	0	0	+	0	0	0	0
M/T	0	0	0	++	+	0	0	0	0	0	+	0	0	0	0
L/T	0	0	0	++	+	0	0	0	0	0	+	0	0	0	0
Effect: ALT1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
S/T	0	0	0	?/+	?/-	0	0	0	0	0	?/+	0	0	0	0
M/T	0	0	0	?/+	?/-	0	0	0	0	0	?/+	0	0	0	0
L/T	0	0	0	?/+	?/-	0	0	0	0	0	?/+	0	0	0	0
Effect: ALT2	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
S/T	0	0	0	++	+	0	0	0	0	?	+	0	0	0	0
M/T	0	0	0	++	+	0	0	0	0	?	+	0	0	0	0
L/T	0	0	0	++	+	0	0	0	0	?	+	0	0	0	0
Effect: ALT3	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

S/T	0	0	0	++	+	0	0	0	0	?	+	0	0	0	0
M/T	0	0	0	++	+	0	0	0	0	?	+	0	0	0	0
L/T	0	0	0	++	+	0	0	0	0	?	+	0	0	0	0
Effect: ALT4	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
S/T	0	0	0	?	+	0	0	0	0	0	?	0	0	0	0
M/T	0	0	0	?	+	0	0	0	0	0	?	0	0	0	0
L/T	0	0	0	?	+	0	0	0	0	0	?	0	0	0	0

Effects regarding environmental and social sustainability objectives cannot be identified with any certainty at this stage, and at the strategic scale, as much depends on site specifics and proposals on a case-by-case basis. Nevertheless, it is considered possible to focus on the economic effects of the Policy and alternative, in so far as they relate to the remit of the MLP and the practicalities of mineral extraction.

NPPF Paragraph 205 states that 'when determining planning applications, great weight should be given to the benefits of mineral extraction'. The benefits of mineral extraction need to be justified and evidenced through a compliant Minerals Resource Assessment if the development proposal meets a certain threshold and other considerations as stipulated in criteria a) and b) within the Policy. These criteria are not proposed to be amended through the Plan review and are a constant factor within the assessment of all options.

The Policy seeks to retain the inclusion of consultation being required for all planning applications for development on a site located within an MSA and/or MCA that would have the potential to sterilise 5ha or more for sand and gravel. At the examination of the adopted MLP, it was noted by the Inspector that this threshold was arbitrary, and the requirement is not set out in national policy or guidance. Although justified within that examination, and considered justified at this stage, the use of thresholds of varying sizes could lead to some differences in possible effects, at least notionally.

ECC data collected to inform the 2021 MLP Review between the five year period of 2014-2019 indicated that within the MSA, the MPA was consulted on 62 planning applications meeting a 5ha threshold. Of these, 30 applications were granted, leading to 671ha of minerals being sterilised. At a 7.5ha threshold, the MPA would have been consulted on 45 applications and the 21 applications granted contributed to a coverage of 624.5ha of mineral. At a 10ha threshold, the MPA would have been consulted on 40 applications, 19 of which were granted covering a total of 606.5ha of mineral. This demonstrates that were the 5ha threshold set higher at 7.5ha, then a total of 46.5ha would have been sterilised without consultation with the MPA, and at 10ha this would have been 64.5ha. Setting a higher threshold would therefore lead to less MPA consultations and an increased likelihood of more resource being sterilised.

This data also supports the Policy direction that seeks to require prior extraction, rather than the adopted approach of its consideration only (as included in this SA as ALT1); the amount of minerals being sterilised through non-mineral development is a significant amount and could increase the amount of aggregate classified as 'windfalls'.

A 'Rationale' document produced as evidence for the MLP Review in 2021 stated that, 'any application that has the potential to sterilise less than 5ha of sand and gravel would not be sent to the MPA for comment… This means that there is no understanding of the amount of mineral being sterilised by the permitting of smaller non-mineral developments, and whether this is greater or smaller in total than what is being lost through the permitting of larger non-mineral developments.' This statement allows the notional consideration of alternative ALT3 to have increased positive implications in regard to both understanding the quantity of minerals being sterilised from smaller scale developments, and the possibility of a higher yield from prior extraction. The amount of mineral resource that could be extracted under this alternative scenario is unknown, however positive effects are highlighted for Sustainability Objectives 4 and 11, that could be more significant than those of the approach of Policy S8 as drafted. 'Significance' in this instance is not possible to quantify, however. This is similarly the case for alternative ALT2, which removes any considerations of thresholds and can be assumed to reflect a scenario where all developments within a MSA / MCA would need to consult the MPA.

Any notional support for the approaches specified in alternatives ALT2 and ALT3 is considered in the Rationale document which references the current para. 70 of the NPPF, which sets out that local planning authorities should identify land to accommodate at least 10% of their housing requirement on sites no larger than one hectare in size. Should this be reflected in LPA Local Plan allocations, or a matter for development management should such sites not be allocated due to their size, then the sterilisation of minerals could be comparatively more under the adopted Policy approach than the two alternatives. Alternative ALT4, which would require consultation at a larger threshold only can be considered to have uncertain effects on Sustainability Objectives 4 and 11, with a comparatively higher degree of possible mineral sterilisation than the adopted Policy approach.

The MPA, in formulating the adopted Policy approach, informally consulted the mineral industry regarding what constitutes an appropriate threshold for mineral safeguarding purposes. As included within the previously mentioned Rationale document, this informal consultation 'found that there would need to be a minimum of 3ha of resource for the site to be capable of being worked, and so approximately doubling that minimum threshold is considered a reasonable approach towards ensuring that the requirements of Policy S8 only apply to non-mineral led applications where there is a reasonable prospect of there being a sufficient quantity of mineral present which is practicable to extract.' This statement can be considered to rule out the application of alternative ALT2 in those instances where developments are below a size where 3ha of minerals could be sterilised, and can be seen to limit the potential extent of lowering the threshold under alternative ALT3 to 3ha.

Justification of the 5ha threshold follows the local characteristics of Essex, which has significant sand and gravel coverage. There is no requirement therefore to ensure consultation / prior extraction is a factor for all developments regardless of size (alternative ALT2), and a pragmatic approach is proposed. This is supported by the Inspector's Report of the adopted MLP in 2014, which stated that, 'the 5ha threshold was subject to public consultation and this approach is justified, given the wide extent of sand and gravel reserves in Essex, where prior

extraction need not always be necessary. Where prior extraction is required, its environmental impact and site restoration remain under the control of Policies S10 and S12 as well Development Management Policies DM1-2.' Lowering the threshold to 3ha, or any smaller size (alternative ALT3), does not factor in site conditions and the practicalities of extraction. A threshold of 3ha is seen as a minimum size to consider; in reality it can be considered that extraction is only feasible at this size in those instances where site conditions are ideal for extraction. This is rare, and the process requires a larger footprint for the extraction of 3ha of minerals to take place.

In further considering the effectiveness of a 3ha threshold and a 'no threshold' scenario, acknowledgement should be given to the Plan's wider amendments in regard to whole-development viability specified in a new Appendix which includes a checklist for a Minerals Resource Assessment (MRA). Although MRAs are not a new notion at this stage, specifying what they must contain is now included within the Plan, with the intention to speed up the process. It can be assumed that whole-development viability could be affected to a higher degree on smaller sites, should prior extraction be a condition of any planning permission.

The Policy's approach of now requiring (rather than considering) prior extraction is in response to the monitoring of the policy approach since the adoption of the MLP in 2014. Monitoring indicates that significant amounts of sand and gravel have been sterilised by non-mineral development, and little to no sand and gravel has been prior extracted to avoid sterilisation where mineral extraction was not already part of proposals. This position can be seen to support the proposed Policy approach in favour of the alternative approach of keeping the adopted MLP Policy (alternative ALT1). This can be expected to lead to more positive effects in regard to a number of Sustainability Objectives due to a potentially higher amount of extracted minerals coming forward as windfalls. Effects are highlighted as 'positive' in the long term (reflecting the post-Plan period) as such windfalls can be expected to positively contribute to the landbank in the future. In contrast, 'uncertain with negative leaning' effects are highlighted for Sustainability Objective 5 regarding the adopted Plan approach (alternative ALT1) due to the monitoring of prior extraction post-2014 and also the consideration of such resources possibly being sterilised.

The amended policy approach leads to positive effects in regard to minerals supply (Sustainability Objective 5), as well as further positive effects regarding the sustainable use of minerals (Sustainability Objective 11). Effects are not considered significant due to the fact that such resources would only come forward as windfalls, which carry a degree of uncertainty and cannot be relied upon, and plan-level need can be met through allocations; however the annual cumulative loss of resource is becoming significant in a strategic sense. Should the policy be successful in ensuring prior extraction, then this could have significantly positive effects in future plan periods. Effects for the Policy approach and for alternatives ALT2 and ALT3 are considered similar in light of a lack of strong evidence to support lowering or removing the 5ha threshold, although it could be assumed that a lower threshold would lead to less mineral resource being sterilised than the adopted Policy approach. Regarding the sustainable use of land (Sustainability Objective 4) the Policy approach and those that require prior extraction can be considered to ensure significant positive effects, particularly should such an approach be successful to the degree of reliably contributing to landbanks in the future.

The impacts on whole-development viability through both requiring prior extraction and removing or lowering the threshold for consultation, however, can be assumed to be uncertain

(and potentially negative) at this stage for small sites, as previously mentioned. Uncertain effects are therefore highlighted for alternatives ALT2 and ALT3 in regard to supporting the development industry, raised in this instance against Sustainability Objective 10.

4.3.8.4 Mitigation measures proposed to minimise identified effects

No mitigation measures are proposed to the Plan's Policy S8 at this stage of the SA.

4.3.9 Policy S9 Safeguarding Mineral Extraction Sites and Other Mineral Infrastructure

4.3.9.1 What amendments have been proposed since the 2014 MLP?

The amendments proposed for Policy S9 represent a re-write of the Policy. This reflects removing the approach of listing safeguarded sites and instead introducing 'Mineral Infrastructure Consultation Areas' (MICAs), within which all existing, permitted and allocated minerals infrastructure, including mineral extraction sites are included, plus a 250m buffer. There is a clear requirement in the NPPF to ensure that associated mineral infrastructure and not just the sites of extraction are to be safeguarded. MICAs will be designated up to 250m around existing, permitted and allocated sites.

The Policy requires non-mineral led applications within MICAs to include a 'Minerals Infrastructure Impact Assessment'. Proposals will be acceptable should they include suitable and effective mitigation or the permission for the mineral use will expire before the non-mineral development would be operation or occupied. Further, proposals would be acceptable if the minerals development has ceased and there are no subsequent minerals related development for the site, the benefits of the scheme outweigh the minerals development (and it can be displaced) and if a suitable replacement minerals development site or minerals infrastructure has otherwise been identified and permitted.

Policy criteria related to new transhipment sites is now included within Policy S5 of the Local Plan, and as such is removed from Policy S9.

4.3.9.2 Are there any new alternatives to consider?

The amendments introduce new elements to the Policy in regard to the requirements for a Minerals Infrastructure Impact Assessment (MIIA) of non-minerals proposals within MICAs. The detail and structure of an MIIA is included within the Plan's Appendix Two.

Otherwise, amendments and other Policy inclusions are introduced to offer clarity to developers and LPAs of what is acceptable to the MPA regarding non-minerals development in MICAs. To this extent, the Policy does not include 'Policy criteria' as much as a guideline of the level of information required of such applications. There is a clear requirement in the NPPF to ensure that all associated mineral infrastructure and not just the sites of extraction are to be safeguarded, with the PPG making clear that Local Planning Authorities have an important role in this regard. The Policy seeks to safeguard all such minerals infrastructure, rather than retaining the adopted MLP approach of safeguarding existing facilities only. In line with the NPPF requirement, no alternatives are deemed reasonable, including retaining

the existing Policy approach.

Many of the Policy's other amendments seek to effectively update the MLP in alignment to the adopted Waste Local Plan (WLP), which is important for a coordinated approach; ECC is both the Minerals Planning Authority (MPA) and the Waste Planning Authority (WPA) for Essex and many other such authorities develop joint Minerals and Waste Local Plans. As such, no alternatives are deemed reasonable; the Waste Local Plan is an adopted plan and any deviation from the newly proposed Policy approach could jeopardise the opportunity for coordination between relevant minerals and waste planning functions.

4.3.9.3 Assessment of Policy S9

Effect	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
S/T	0	0	0	+	+	0	0	0	0	+	+	0	0	+	+
M/T	0	0	0	+	+	0	0	0	0	+	+	0	0	+	+
L/T	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

The Policy seeks to safeguard minerals infrastructure, as opposed to 'resources' set out in Policy S8. Minerals infrastructure is defined as extraction sites and associated facilities, preferred sites allocated within the Plan for future extraction, transhipment sites, aggregate recycling facilities, and standalone or co-located secondary processing facilities. The Policy approach safeguards all of these through designating a buffer of 250m around each as a Mineral Infrastructure Consultation Area (MICA). This approach ensures positive effects regarding Sustainability Objective 5 (minerals supply), and also Sustainability Objective 11.

As the supporting text to the Policy includes, safeguarding mineral infrastructure is not just about safeguarding against the loss of the facility itself. Mineral development may create impacts on their immediate surroundings and local communities through, for example, dust or noise emissions and vehicle movements. Development that is sensitive to such impacts, and therefore potentially incompatible in close proximity to minerals development, can include facilities such as hospitals and clinics, retirement homes, residential areas and schools. Incompatible / sensitive development should not be located in such close proximity that it puts constraints or limits upon current or future uses for mineral development where these are already allocated. Similarly, and where the MLP forms part of each local authority's Development Plan alongside LPA Local Plans, the Policy criteria indirectly ensures that sensitive developments are not forthcoming within the MICAs, to the benefit of health and minimising nuisance. Indirect positive effects are also realised therefore, for Sustainability Objectives 14 and 15.

The Policy is not however inflexible in regard to non-minerals related development within MICAs. The Policy includes five criteria / instances in which it may be possible for non-mineral development to be permitted within MICAs, including where mitigation would ensure no unacceptable impacts, development is phased to when temporary minerals permissions have ceased, and where the benefits of the development outweigh the need for the minerals

infrastructure and it can be replaced. This ensures that positive short-medium term effects can be expected in regard to Sustainability Objective 4, regarding the sustainable use of land, as well as economic development (Sustainability Objective 10) in not creating an insurmountable barrier to other forms of development.

4.3.9.4 Mitigation measures proposed to minimise identified effects

No mitigation measures are proposed to the Plan's Policy S9 at this stage of the SA.

4.3.10 Policy S10 Protecting and Enhancing the Environment and Local Amenity

4.3.10.1 What amendments have been proposed since the 2014 MLP?

The proposed amendments for the Policy include the inclusion of appropriate consideration to a proposals effects on 'wellbeing' alongside public health and safety, and also the inclusion of a requirement for the delivery of a net gain in biodiversity, as an outcome of final restoration.

4.3.10.2 Are there any new alternatives to consider?

It is not considered that the amendments to the Policy lead to a significantly different approach to the adopted Policy. It is further considered that any deviations from the Policy wording as proposed that would be realistic and reasonable, would not be distinctly different from the proposed approach to warrant separate assessment as an alternative within this SA.

4.3.10.3 Assessment of Policy S10

Effect	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
S/T	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M/T	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
L/T	+	0	0	0	0	0	0	0	0	0	0	+	0	+	0

The Policy sets the strategic approach of the Plan in ensuring that environmental and social effects of a proposal are understood at the planning application stage. It should be acknowledged that the Plan's development management policies, in particular Policy DM1, offer more detail to developers / landowners and what evidence based assessments should be submitted alongside a planning application.

The Policy effectively covers those themes of the Sustainability Objectives, which have been derived relevant to the context of the Plan area and the key issues and problems of the County. In terms of outcomes and sustainability benefits, positive long-term effects are

highlighted regarding biodiversity and human health, where the Policy, as amended, requires applications to demonstrate that opportunities have been taken to improve and enhance the environment and amenity, and to deliver a net gain in biodiversity, as an outcome of final restoration. Positive long-term effects are also highlighted regarding Sustainability Objective 12, regarding restoration that offers the best sustainability benefits, be it habitat creation, open space and / or for recreational opportunities.

4.3.10.4 Mitigation measures proposed to minimise identified effects

No mitigation measures are proposed to the Plan's Policy S10 at this stage of the SA.

4.3.11 Policy S11 Access and Transport

4.3.11.1 What amendments have been proposed since the 2014 MLP?

The amendments to the Policy move the requirement to demonstrate that the development would not have unacceptable impacts on the efficiency and effective operation of the road network, including safety and capacity, local amenity and the environment, to the end of the Policy.

An amendment introduces the need for any proposal's mineral related HGV movements to not generate unacceptable impacts on air quality and further ensures that proposals shall be in accordance with published highway design guidance. Additionally, a new policy element introduces the need for planning applications for new minerals development proposals or proposals that generate traffic impact and/or an increase in traffic movements, to be accompanied by a Transport Assessment (TA) or Transport Statement (TS). The Policy also includes what TAs or TSs must include, covering a range of evidence including sustainable transport methods for workers, sustainable highways access, and mitigation; this includes any physical effects on the highway network, safety, and highway capacity / efficiency.

4.3.11.2 Are there any new alternatives to consider?

The amendments cover a wider range of effects and potential transport related effects than the adopted Policy included. It is considered that the Policy is more broadly in conformity with the NPPF, and also more in line with the requirements of National Air Quality Objectives regarding air quality and the ancillary effects of transportation and HGV movements. As a result, no distinctly different alternative approaches have been identified that warrant assessment within this SA.

4.3.11.3 Assessment of Policy S11

Effect	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
S/T	0	0	0	0	0	?	+	0	0	0	0	0	+	0	+
M/T	0	0	0	0	0	?	+	0	0	0	0	0	+	0	+

Effect	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
L/T	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

The Policy as amended can be seen to ensure positive outcomes in regard to those Sustainability Objectives that seek to minimise the transportation of mineral / mineral waste, particularly by road, and by virtue also public nuisance. Additionally, positive effects are highlighted for minimising greenhouse gas emissions.

The Policy has been amended to offer a stronger stance on air quality, stating that 'where the movement of minerals are by road, HGV movements shall not generate unacceptable impacts on highways safety, highways capacity and air quality (particularly in relation to any potential breaches of National Air Quality Objectives and impacts on any Air Quality Management Areas).' How this is sought to be achieved is reflected through the Plan's new criteria pertaining to Transport Statements or Transport Assessments. These ensure that for applications for proposals reliant on road transportation, that the road network is appropriate to accommodate that use and that vehicle traffic use appropriate routes, amongst other considerations. The stance of the Policy seeks to neutralise effects, also acknowledging the correlation between traffic movement and air quality.

The relationship between air quality and biodiversity, most notably at Epping Forest SAC and identified as an 'in-combination effect' between planned growth in Essex, the Lower Thames Crossing NSIP and HGV movements associated with minerals, is raised within the HRA accompanying the MLP for consultation at this stage. The HRA indicates that effects can not be ruled out in combination with other plans and projects in the broad area. Whilst it is noted that the anticipated uplift in vehicle movements is primarily linked to the Lower Thames Crossing NSIP, the MLP may also indirectly increase vehicle movements, meaning it will contribute to (or be 'in-combination' with) this impact. The Policy, relevant to access and sustainable transportation, sets out a road hierarchy that seeks a preference for access to the main road network as soon as possible, and the MLP cannot influence traffic movements through Policy, and neither can conditions be imposed on permissions that direct HGV movements away from any areas of notably poor air quality. As such, the potential for Likely Significant Effects on the Epping Forest SAC due to emissions derived from HGV movements associated with minerals activities on the M25 cannot yet be ruled out in combination with other plans and projects.

It is assumed that there would be an increase in transport movements (and therefore emissions) from any and all development, and planning authorities are required to monitor the success of Plan policies against indicators in the Development Plan as set out in their Authority Monitoring Report (AMR). Regarding air quality, it is possible that an air quality monitoring indicator would be required of the MLP, in consideration of the HRA/AA findings. Monitoring air quality has not been undertaken of the adopted MLP, as negative effects were not identified of that Plan or its evidence base. It is therefore difficult at this stage to substantiate any direct transport related air quality effects occurring from the Plan or subsequent minerals activities, especially in consideration of the fact that many minerals activities are temporary. Available evidence regarding air quality, such as diffusion tube monitoring at key locations, does not and cannot isolate emissions by vehicle type or destination. As such, 'uncertain' effects are cautiously highlighted for Sustainability Objective 6

in the short-medium term, reflecting the lifetime of permissions. The effect of a proposal regarding air quality is likely to be better understood at the site level and at the planning application stage, through the requirements of the Policy and subsequent Transport Assessments / Transport Statements. This would include consideration of proposed mitigation. The HRA also considers this position, and at the time of writing, further advice is being sought from Natural England. The SA will subsequently be updated on this matter at the Regulation 19 stage.

4.3.11.4 Mitigation measures proposed to minimise identified effects

No mitigation measures are proposed to the Plan's Policy S11 at this stage of the SA.

4.3.12 Policy S12 Mineral Site Restoration and After Use

4.3.12.1 What amendments have been proposed since the 2014 MLP?

The proposed amendments to the Policy include the requirement that restoration schemes shall reflect strategies across Essex, including Local Plan objectives for growing natural capital and Green and Blue Infrastructure Strategies where relevant. There is also a marked change of approach regarding restoration, specifically regarding the levels to which voids should be restored.

The adopted 2014 MLP Policy S12 included a preference that voids be restored to a low level with no landfill in the first instance and if that is not possible, then at a low level with no more landfill than is essential and necessary. A final case scenario was included that landfill would be acceptable subject to the requirements of the Waste Local Plan (WLP) if the site is 'preferred' within the WLP. Text pertaining to this was proposed for removal through the MLP Review (2021), with a new position of mineral extraction sites to be 'infilled with imported materials (which have no other form of re-use or recycling further up the waste hierarchy) only at a scale necessary to achieve a beneficial restoration that outweighs any harm caused.' This position is included within the Policy at this stage.

4.3.12.2 Are there any new alternatives to consider?

Within the previous adopted MLP (2014), there had been a Policy focus on priority habitat creation (a minimum of 200ha from the Plan's allocations), however this is now covered by national requirements of biodiversity net gain which is included within the Policy. The Policy is suitably flexible in regard to any restoration that has a beneficial after-use. The supporting text to the Policy sets out examples as including 'opportunities to enhance the variety, and quality, of environmental features and increase the wider benefits available to communities. For example, recreational opportunities, a unique range of wildlife, and offering relief from the higher temperatures expected as a result of climate change.' With this in mind, and the Policy and wider Plan's heightened consideration of proposals on their own merits, there is not considered to be any alternatives at this stage.

4.3.12.3 Assessment of Policy S12

Effect	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
S/T	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M/T	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
L/T	++	0	+	+	0	0	0	0	+	+	0	++	?/+	+	0

The Policy requires applicants and the MPA to consider the range of benefits that mineral restoration and after-use proposals might deliver, with reference to Green and Blue Infrastructure Studies at the LPA level and LPA Local Plan objectives, and biodiversity net gain more generally, when proposing restoration and after-uses. The Plan also specifies that the MPA will facilitate the management and enhancement of populations of protected species and creation of priority habitats, with the overall aim to achieve a net gain in biodiversity.

The Policy ensures that restoration is now outcome led, through the proposed omission of the hierarchical approach as per the adopted MLP (2014). The focus can now be seen as less on restoration to low levels and more about after use to ensure net gains in both biodiversity, and also health and well-being improvements. It is proposed that the final restoration level of sites will now generally be decided on a case-by-case basis, but must be sympathetic to the surrounding landscape with infilling only at a scale considered necessary to achieve beneficial restoration. Significant positive effects could be forthcoming through such a joined-up approach regarding restoration and biodiversity related Sustainability Objectives (12 and 1 respectively) through minerals planning promoting natural capital and reflecting targeted strategies that can more effectively promote natural capital gains. Restoration to higher levels, if forthcoming, could also see landscapes restored closer to original pre-extraction levels, offering positive effects on Sustainability Objective 9. Further, the Policy's supporting text allows the possibility for restoration to include built development, such as housing or employment uses, if consistent with District / Borough Local Plan objectives. This broadly affords some positive long term effects associated with non-mineral related development, identified here as an economic benefit under Sustainability Objective 10.

The approach will allow the MPA to consider the relative benefits that would be realised through a specified degree of importation, which in turn may lead to increased transportation of minerals. As such, and although reducing such transportation is a Plan objective, a degree of long-term uncertainty is highlighted for transport related effects (Sustainability Objective 12). This uncertainty reflects an element of negative effect associated with importation to sites, however it is acknowledged that imports are likely to be focused within the Plan area, allowing a potential wider benefit in minimising waste (landfill) miles.

The Policy's previous approach, as adopted and unamended, had a focus on agricultural after uses alongside habitat creation. Such schemes may still come forward, where not already proposed and forming part of permissions, however it should be noted that agriculture and biodiversity enhancement / habitat creation need not be incompatible land uses. The Policy and supporting text acknowledges that a balance should be achieved between current and future agricultural need and site-specific biodiversity value. The Policy is amended to state that 'land of the best and most agricultural value should be capable of being restored back to

the best and most versatile agricultural land, though the proposed after-use need not always be for agriculture'. This is compliant with the requirements of PPG and ensures minor positive effects on Sustainability Objective 4, regarding the sustainable use of land. Effects are not significant for Sustainability Objective 4 however in line with a possible reduction in the number of sites that may otherwise have been restored to agriculture in the Plan area without the Policy amendment.

The potential for positive effects regarding health and well-being are also highlighted within this assessment. Improvements in human health and wellbeing associated with restoration can be ensured through a number of factors, including specifically to the Policy the provision of open spaces and natural environments to encourage people to be physically active as well as habitat creation.

4.3.12.4 Mitigation measures proposed to minimise identified effects

No mitigation measures are proposed to the Plan's Policy S12 at this stage of the SA.

4.4 Assessment of the Minerals Provision Figure

4.4.1 The Requirement

As set out previously in the assessment of Policy S6, the NPPF at paragraph 219 states that 'Mineral Planning Authorities should plan for a steady and adequate supply of aggregates' and then sets out a range of criteria through which such a supply can be quantified. The starting point for this is stated to be an assessment of the last ten years of average sales, before supplementing this with 'other relevant local information', such as household projections, housing completions and major infrastructure projects which are to be located within the Plan area. Further, paragraph 219 d) states that MPAs should take 'account of any published National and Sub National Guidelines on future provision which should be used as a guideline when planning for the future demand for and supply of aggregates.' Such guidelines are to be used as 'an indication of supply rather than a rigid basis' as per Planning Practice Guidance.

4.4.1.1 What amendments have been proposed since the 2014 MLP?

The minerals provision figure, expressed in 'million tonnes per annum' (mtpa), underpins all of the Plan's focused content. The MLP Review (2021) process, the Local Aggregate Assessment (LAA), and the MLP Topic Paper 'Forecasting the Need for Mineral Provision in Essex 2025-2040' have identified the need to amend the 'mtpa' sand and gravel extraction figure to 3.98mtpa from Plan adoption to 2040.

The supporting text / reasoned justification for Policy S6 outlines Plan provision for future sand and gravel extraction, including the requirement for new sites to be allocated in order to contribute to meeting the overall Plan need of 87.56mt over the Plan period. Excluding from consideration the sand and gravel that that can be expected to be extracted through existing reserves, a total of 64.56mt of sand and gravel is required within this period through extraction at newly allocated sites.

4.4.1.2 Are there any new alternatives to consider?

In regard to provision, the idea that alternatives exist that set out a different amount or level of sand and gravel to be extracted within the Plan period should be explored to determine whether or not they are 'reasonable'. The SA of the MLP Review (2021) identified notional examples of provision at higher and lower levels than that proposed at the time, which was essentially a 'business as usual' scenario where the adopted MLP (2014) Subnational Aggregate Apportionment figure was rolled forward. It should be acknowledged that at this stage however, provision as expressed within the adopted MLP (2014) and the MLP Review document (2021) is considered a historic approach that has not been updated since its introduction; that being the splitting of national supply guidelines for minerals demand between MPAs or sub regions.

At the MLP Review (2021) stage, the SA focused on the economic assessment of options, those being the Subnational Aggregate Apportionment figure, and a (then) alternative of a figure based entirely on the ten year aggregate sales figure (an indicative 'lower' figure). Without the introduction of site options, it was considered that to attempt to address environmental and social factors into the assessment would not be possible and entirely assumption led.

At this stage however, the MPA has made the decision to undertake a new MLP process, rather than review and amend that which was adopted in 2014. This means a new plan period, and the need for new site allocations. Candidate site options have been submitted and assessed by the MPA and also within this SA Interim Report, and although none are identified as preferred at this stage, assumptions from their assessment can be fed into the process of assessing different mineral provision figures. This allows the notional assessment of options against the full range of Sustainability Objectives within this SA.

A key assumption which has been used that underlies the identification of options, and that allows for differentiation in their assessment, is based on the notion that where provision is set at higher levels there will be the need for more newly allocated sites. Similarly, lower provision would require the need for fewer allocations. This premise allows options to be identified that are distinctly different to warrant consideration as 'reasonable alternatives' in this SA.

With this in mind, there are two identified areas regarding provision, that could warrant the identification of realistic alternatives.

1. Different levels of deciding / calculating provision

2. Options surrounding alternative sources to primary extraction

These are discussed in turn in the below sections, including whether any such options can be considered 'reasonable'.

1. Alternatives regarding different levels of deciding / calculating provision

The 2014 MLP outlined a requirement for 77.58mt over an 18 year period (2012-2029 inclusive) at 4.31mtpa. At that time, existing reserves were identified at 36.03mt, leaving a

total of 40.67mt to be extracted through new allocations. This was comprised of 16 allocations on 10 sites, of which 13 are extensions to existing quarries and 3 were newly identified sites (two of which were identified as 'reserve sites' that would only be required should the landbank fall below 7 years). The MLP Review 2021 outlined that the figure of 4.31mtpa was (at that stage) still appropriate to meet the mineral provision figure of 77.58mt over a Plan period of 2012-2040 inclusive. No new sites were identified as required, on the basis that the 2014 MLP be amended to include the two 'reserve sites' as allocations.

The SA of the MLP Review 2021 document set out that the PPG requires that MPAs 'look at average sales over the last three years in particular to identify the general trend of demand as part of the consideration of whether it might be appropriate to increase supply' as the three-year sales average typically more closely mirrors 'actual sales of sand and gravel' as exists at any one moment, than the ten-year sales average. The MLP Review document, and the SA at that stage, identified that it is difficult to justify that any particular three-year sales average is sufficiently representative of actual sales across the ten year period to merit its inclusion as the basis for mineral provision in a strategic plan. For that reason, any alternatives that base provision on any three-years sales average were not considered reasonable within the SA at that stage, and this remains the case.

At the current stage, a total of 87.56mt is identified as required over the Plan period (2025-2040) at a provision rate of 3.98mtpa. This rate factors in an uplift to the ten-year rolling sales average of 20%; a 'buffer' to ensure that any increase in demand can be met. Existing reserves are forecast to be 22.95mt in 2025 (the expected adoption date of the new MLP), leaving a total of 64.56mt to be met through new site allocations. As of 2022, there were a total of 17 active extraction sites in the Plan area.

A key factor in the MLP's provision figure at this stage, which differs from the figure n the adopted 2014 MLP, is the consideration of 'other relevant information'; a factor included within the sand and gravel provision methodology as set out in the NPPF (2024). The 'Forecasting the Need for Mineral Provision in Essex, 2025 – 2040' Topic Paper (referred hereafter as 'the Topic Paper') identifies a range of other factors that have, or may have, a bearing on the need to provide any uplift from the ten-year rolling sales average. Those that are relevant to 'reasonable alternatives' (i.e. are not entirely constant factors), and discussion on whether their inclusion or omission as factors that affect the Plan level provision total, are included in the below table. Those factors that are not included below, but are included within the abovementioned Topic Paper, are considered constant factors deviation from which would not be considered NPPF compliant.

Table 6: Selected 'other factors' included within the Plan provision total and whether their inclusion / omission would constitute any reasonable alternatives

'Other factor'	Discussion re: reasonable alternatives
The Use of the National and Sub-National Guidelines for Aggregate Provision, 2009 – 2020 in	The abovementioned topic paper sets out that these guidelines are considered out of date, but also that a number of representations at the MLP Review (2021) stage were of the opinion that the guideline

'Other factor'	Discussion re: reasonable alternatives
setting the provision rate in the emerging MLP	apportionment figure for Greater Essex should be retained. The apportionment rate of 4.31mtpa (as per the 2014 MLP) is higher than that proposed within the emerging Plan (representing a 30% buffer on top of the ten-year rolling sales average), and although an 'indicator' of need, its continuing use can be considered a reasonable alternative at this stage.
The impact of the COVID-19 pandemic on mineral statistics collation and accommodating 'Non-representative' sales data	The impact on sales figures during 2019 and 2020 as a result of the pandemic are not considered representative of the market for mineral resources by the MPA, showing a marked drop in sales. For this reason, they are not included within the ten-year rolling sales average. It is agreed that any alternative that does include these lower sales figures for the above two years would result in a lower 'mtpa' provision within the Plan period that is not reflective of needs, taking into account growth in the Plan area. As such, any alternative of not adjusting the sales data to omit these years is not considered 'reasonable'.
Assessing whether falling sales is influenced by a lack of supply rather than just wider economic impacts	The analysis of whether a lack of extraction (due to for instance the closure of extraction sites or the expiration of permissions to extract) has led to a fall in sales (due to a lack of supply) has been undertaken within the Topic Paper. This analysis shows that that this is not the case within Essex. There are therefore no alternatives to consider in this regard.
Likely changes in demand due to forecasted future rates of development / Forecasted housing completions in Essex to 2040 / Nationally Significant Infrastructure Projects and Other Major Projects in proximity to Essex	The Topic Paper sets out that 'whilst historic sales of sand and gravel give an indication of the scale of development that has occurred, the key role of the MLP is to plan for the amount of mineral needed to serve the scale of development that is forecasted to occur.' The Topic Paper sets out that Local Authorities in Essex are preparing Local Plans to deliver approximately 150,500 additional homes up to 2036 and beyond, equating to approximately 7,150 additional homes per annum based on either `Objectively Assessed Housing Need (OAHN)' or the `Standard Method (SM)' for the relevant local authority. Historic rates of delivery from 2001 show 4,753 additional homes per annum. These new homes, and the commercial opportunities and the infrastructure needed to serve them, require mineral resources in order to be able to be developed. Although it is not possible to equate and

'Other factor'	Discussion re: reasonable alternatives
	quantify how much mineral resource is needed 'per new home', the Topic Paper considers that a 20% buffer in addition to the ten-year rolling sales average is appropriate to meet new growth. An alternative that explores a larger buffer (30%) is explored within this SA and its notional assessment can also be considered indicative of 'higher provision' in general.
The current and future state of the Economy	The Topic Paper sets out that 'demand for sand and gravel itself has been falling since mid-July at the national level, driven by weaker housebuilding activity and delays to key infrastructure projects amid persisting cost and planning challenges across key subsectors, particularly with regards to roads. According to the recently published Autumn 2023 forecast from the Construction Products Association, construction output will not return to growth until 2025. Despite the current economic climate however, the MLP must be predicated on the basis of long-term future 'need' as best understood by all the latest evidence, and for the emerging MLP, the MLP considers that this must factor in the growth rates set out in district Local Plans.' In regard to reasonable alternatives, it is considered that none exist that can be considered realistic with confidence over a 15 year Plan period. To explore the alternative of forecasting trends in sales on the basis of the immediate situation would as the Topic Paper sets out, dismiss those Local Authority Local Plans' housing needs. In turn, to dismiss these would be contrary to the provision of mineral resources as set out in the NPPF.

In consideration of the above, the following is considered a 'reasonable' alternative at this stage:

- Alternative 1 (ALT1): The Use of the National and Sub-National Guidelines for Aggregate Provision (2009 – 2020) in setting the provision rate in the emerging MLP (i.e. a continuation of the 4.31mtpa figure until 2040 (representing a 30% buffer)).

2. Options surrounding alternative sources to primary extraction

Some alternatives that focus on alternative sources of mineral provision to land-won aggregates should be discussed notionally. Such provision can often be perceived as leading to fewer or lesser impacts than extraction at allocated / permitted quarries in certain instances or locations. The Topic Paper explores the reliability of other sources of sand and gravel that are all active supply sources in the sand and gravel market. These sources are:

- Marine Sources
- Recycled Sources
- Secondary Sources
- Windfall Sources
- Imports and Exports

Table 7: Whether an increased reliance on other sources of provision constitute reasonable alternatives to the MLP's proposed land-won provision

Other source of provision	Discussion re: reasonable alternatives
Marine Sources	There is a question as to whether an increase in the proportion of marine-won aggregate use in Essex can be reliably quantified, and it is a monitoring indicator within the MPA's Authority Monitoring Report (AMR). Further detailed work influenced the 2021 MLP Review which involved engagement with the minerals industry as well as adjoining port and district authorities where landings occur. The report found that there is an absence of sufficiently robust data and that it has not been possible to operate the monitoring indicator. The Topic Paper suggests that anecdotal evidence summarises that there remains surplus capacity at wharves with the ability to support Essex, and issues are focussed around production capability being limited by existing fleet numbers rather than wharf capacity. The Topic Paper adds that 'it is outside of the ability of the MPA to develop additional wharf and dredger capacity beyond implementing a facilitatory policy framework within which such facilities could be developed, expanded and safeguarded.' As such, although marine-won aggregates could play a more important part in supply moving forward, there is no certainty or reliability as to the amount that could replace land-won aggregates at this stage. As such, sole reliance on marine sources for sand and gravel provision during the Plan period is not considered a reasonable alternative for the purposes of this SA.
Recycled Sources	'Recycled' aggregates are reprocessed material recovered from, for example, demolition or construction waste. In line with the waste hierarchy, they are important substitutes for primary aggregates manufactured from sand and gravel. The MLP is not proposing to reduce the amount of provision coming forward through allocations on any basis that aggregates can be significantly supplied through recycled material. The Topic Paper sets out that 'there is no way of collating robust County-wide data for recycled aggregate production and capacity. Instead, assumptions and proxy's must be used, which means that caution needs to be exercised if seeking to use the data for quantitative purposes, rather than monitoring general trends.' All the data that the MPA is able to gather in regard to

Other source of provision	Discussion re: reasonable alternatives
	recycled aggregates is published annually in the Greater Essex Local Aggregate Assessment (LAA). The Plan includes policy that all development proposals shall demonstrate 'the maximum possible recovery of minerals from construction, demolition and excavation wastes' in acknowledgment of the sustainability benefits that recycled aggregates ensure. This Plan aim ensures that recycled aggregates are as readily available to the market as possible, which should reduce the need for extraction, and therefore the sales, of primary aggregate. On sales, the Topic Paper adds that 'should recycling capacity increase and/ or more recycled aggregate be sold as a proportion of total sand need, then this will translate into a reduction in primary sand and gravel sales, which will factor into the next calculation of need carried out in a future plan review as this will be reflected in the ten-year sales average of primary mineral that exists at that time.' It is considered that the unreliability of data that can be collected regarding recycled aggregates, ensures that there are no reasonable alternatives in regard to the Plan reducing the amount of primary aggregate extraction over the Plan period to factor in heightened recycled aggregates.
Secondary Sources	The Topic Paper identifies 'secondary' aggregates as those created as a by-product of a construction or industrial process. These can be processed on construction sites, either at stand-alone permanent facilities or temporary facilities co-located with existing quarries, landfill, and recycling sites. These facilities are usually temporary lasting as long as the life of the primary operation. It is acknowledged the contribution such alternative provision can bring to overall supply, however it is not known whether secondary aggregates are produced in any significant quantity in the Plan area. Furthermore, heavy industry in Greater Essex is also not significant and such industry is traditionally a prominent source of secondary aggregate. More widely, the Topic Paper adds that 'a report published by the Mineral Products Association in 2022 suggested that only 3% of the total aggregates supply in Great Britain in 2020 was made up of secondary aggregates.' In light of the above, this SA agrees with the Topic Paper's general conclusion that there is no obvious significant industry

Other source of provision	Discussion re: reasonable alternatives
	base that would lead to the availability of material to be processed into secondary aggregates, and that it is considered that the contribution of secondary aggregate arising from industrial processes as a proportion of total aggregate supply in Essex would be less than 3%. For this reason, factoring in this source of alternative aggregate provision (to primary extraction) to the extent that fewer extraction sites should be allocated, is not a reasonable alternative.
Windfall Sources	The Topic Paper identifies a 'windfall site' as one not specifically allocated for development but which becomes available for development during the lifetime of a plan and where extraction is permitted. Any mineral permitted for extraction at such locations is a 'windfall' added to the permitted reserve. Examples can include borrow pits, agricultural reservoirs, and other development where prior extraction can avoid sterilisation. Notionally, extraction at such sites can reduce the need for future allocations however these sites are not identified within a 'plan-led' process and do not benefit from the suite of evidence base documents that justify the allocation of sites within a plan. As such, applications would need to demonstrate an 'over-riding justification' and/or 'over-riding benefit' to be permitted, however the MLP adopts a flexible approach that considers such sites on a case-by-case basis provided applications are policy compliant. The MPA has examined the amount of mineral excavated through windfall sites between the period 1st January 2013 and 31st December 2022 and whether it could reduce the need for land-won allocations. The Topic Paper sets out that 'over the ten-year period assessed, a total of 1.7mt of sand and gravel was secured by way of windfall sites. This equates to 43% of a single year of need based on the proposed annual plan provision of 3.98mt. Projecting this rate of windfall reserve coming forward for another five years, such that the period assessed is one full Plan length, the total from windfall sites would be 2.55mt. This equates to 64% of a single year of need, or 4% of the total assessed need for additional allocations over the Plan period.' In consideration of alternatives, this SA supports the conclusion of the Topic Paper, which states that, 'given the continued low mineral yield from this source, the low number of applications permitted, and the fact that provision from this source is outside of the control of the MPA, it is considered appropriate to maintain the current approach of making no quantified allowance for the total amount of required allocated provision to be serviced by

Other source of provision	Discussion re: reasonable alternatives
	windfall contributions.' There are therefore no 'reasonable' alternatives regarding such provision, or the identification of a windfall allowance.
Imports and Exports	An option exists, at least notionally, that primary extraction could in theory be reduced by increasing the importation of sand and gravel from sites outside of Essex. The Topic Paper sets out that, 'a pattern of long-distance mineral supply has emerged over time, with Essex exporting its sand and gravel whilst importing hard rock from the Midlands and further afield.' Despite this, data in regard to this is difficult to collect and commercially sensitive. It is therefore not reliable to identify specific numbers. As such, any alternative in this regard would be difficult to assess without the use of assumptions, in particular a reliance on neighbouring authorities to produce more sand and gravel that could then be imported to Greater Essex. As a notion, this would only be achievable in MPA areas that include such deposits. As Greater Essex has such deposits, which are not evidentially constrained from extraction, it would be difficult to justify this position. The Topic Paper adds on the matter that, 'to not make sufficient provision in this context would likely attract significant objection under the DtC which, being a legal provision, would likely have serious implications with regards to the ability to adopt the emerging MLP. Paragraph 210b of the NPPF states that planning policies should 'source minerals supplies indigenously' so to not make sufficient provision for mineral need given the resource base in Essex would be an untenable position.' For this reason, any reliance on provision being sourced outside the Plan area, and imported in to meet needs, is not supported as a 'reasonable' alternative in this SA.

The Topic Paper adds that, looking at the above holistically, 'It is however not appropriate to reduce the assessed need of sand and gravel provided through site allocations, or the proportion of that need derived through site allocations, on the basis that there simply are other sources available. Such reduction in the amount derived through land-won allocations needs to be quantified and justified. It is also not appropriate to attempt to artificially supress market demand by failing to make sufficient allocations when there is potential mineral that could be worked. In the latter event, the MWPA would, in any event, be encouraging applications to come forward on non-allocated sites. The County would lose the benefit of a plan-led system and potentially be unable to secure planned benefits following mineral site restoration.'

In light of the above, it is considered that there are no reasonable, accurate and realistic alternatives to ensuring that mineral needs are met through primary extraction within the

Plan area. It is considered that it is only this source of aggregate that can be planned for with any degree of reliability over the Plan period. This is further considered to be the case for any of the alternative sources discussed in the above table in isolation and also in accumulation.

4.4.1.3 Assessment of the 'Minerals Provision Figure'

This assessment of the 'Minerals Provision Figure' and the alternative identified focuses on the number of new allocations that would be required for extraction at different yields in the identification of potential environmental and social effects. It should be noted that the alternative identified at this stage is notional, and its assessment alongside the proposed direction of the MLP at this stage, does not consider the introduction of specific site options, as the MPA are in the process of selecting preferred sites based on the suite of evidence they are accumulating at the site level. This work has started, and the consideration of detailed options regarding allocations and how they can ensure sand and gravel needs can be met in the Plan period will form part of the Regulation 19 MLP. The SA of such options has been iterative and will feed into that site selection process.

Effect: Plan level	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
S/T	- -	?	?	-	++	?	?	?	?	+	+	0	0	?	?
M/T	- -	?	?	-	++	?	?	?	?	+	+	0	0	?	?
L/T	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Effect: ALT1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
S/T	- -	?	?	-	++	?	?	?	?	+	+	0	0	?	?
M/T	- -	?	?	-	++	?	?	?	?	+	+	0	0	?	?
L/T	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

A starting point in the assessment of the Plan's provision figure alongside the alternative identified is to identify their differences, in regard to 'million tonnes (mt) over the Plan period' and the minimum number of sites that have been submitted for consideration would be required to meet this figure.

The Plan identifies a provision figure of 87.56mt over the Plan period at 3.98mtpa, whilst the alternative represents a total of 94.82mt should the 4.31mtpa figure be extended throughout the new Plan period. With the 'existing reserve' figure of 23mt a constant for both the Plan

and alternative provision figures, this leads to:

- Plan provision required to be met through new site allocations: 64.56mt
- Alternative provision required to be met through new site allocations: 71.82mt

Irrespective of any findings regarding their suitability, the total amount of mineral reserves that would be forthcoming from all of the 51 submitted candidate sites together is 117.55mt. A best case scenario in regard to the minimum number of sites being allocated is such that Plan provision could be met through the 'largest' 11 sites, and the alternative provision through the 'largest' 13 sites. This allows some differentiation between the environmental and social effects of the options i.e. at least two more sites may theoretically be needed to meet the additional 7.26mt required under the alternative provision figure.

Although it should be reiterated that none are identified as preferred or allocated at this time, the full suite of candidate site options has been assessed on a site-by-site basis within this SA Interim Report (see Section 5) and that work has led to the formulation of a series of cumulative assumptions that can be considered within the notional assessment of alternatives within this section. These assumptions are that the allocation of a higher number of sites:

- May lead to a heightened degree of 'Likely Significant Effects' on Habitats sites.
- May lead to a heightened loss of the best and most versatile agricultural land (BMV).

As such, minor differences are identified in the narrative supporting this assessment of the Plan provision figure and also the alternative scenario in at least the short-medium term or the lifetime of mineral extraction for Sustainability Objectives 1 and 4, although both options are likely to lead to negative effects in this regard. At this stage, significant negative effects are identified cautiously regarding biodiversity due to the findings of the HRA, which can be expected to be heightened for the alternative provision figure's need for more sites. Uncertain effects are identified for those sustainability objectives regarding other environmental and social themes, and there is no differentiation between the two options, largely due to effects being broadly self-contained to sites or immediate areas with no known cumulative effects across the Plan area at this early stage.

Nevertheless, despite effects not being identifiable until the introduction of sites into the assessment, broad assumptions can be made that a higher level of disruption can be expected from the additional sites required of the alternative provision figure across the Plan area. This is on the basis that all of the sites assessed in Section 5 of this SA would give rise to some negative effects that will require on-site mitigation. A re-assessment of the minerals provision figure and the alternative will be required once site allocations have been selected, in order to be able to identify the detailed effects of the additional sites required under the alternative provision figure.

In regard to effects more closely related to the Plan's remit, it should be noted that the alternative figure does not factor in any 'local circumstances' as part of need. As discussed, this includes: the impact of the COVID-19 pandemic on mineral statistics collation and

accommodating 'non-representative' sales data; assessing whether falling sales is influenced by a lack of supply rather than just wider economic impacts; likely changes in demand due to forecasted future rates of development; forecasted housing completions in Essex to 2040; Nationally Significant Infrastructure Projects and Other Major Projects in proximity to Essex; and the current and future state of the economy. Consideration of all of these factors has led to the identification of the Plan's provision figure.

Both the Plan provision figure and the alternative maintain a buffer between provision and actual sales, such that both can respond to any sudden uplift in sales. This ensures similar positive outcomes in regard to Sustainability Objectives 5, 10, and 11 and conformity with the NPPF which states that 'plans should positively seek opportunities to meet the development needs of their area and be sufficiently flexible to adapt to rapid change'. A small differentiation is identified in regard to Sustainability Objective 10 however regarding jobs from mineral development which can be expected to be heightened through the need for more allocations (the alternative).

4.4.1.4 Mitigation measures proposed to minimise identified effects

No mitigation measures are proposed to the Plan's Minerals Provision Figure at this stage of the SA.

4.5 Assessment of the Development Management Policies

4.5.1 Policy DM1 Development Management Criteria

4.5.1.1 What amendments have been proposed since the 2014 MLP?

The corresponding 2014 MLP policy has been amended to now include that that proposals should ensure no unacceptable impacts on the health of local residents, as well as the health and wellbeing of the wider community who could be impacted by the operation of developments.

Additionally, several amendments are proposed to the Policy as a result of the consultation on the MLP Review in 2021. These include reference to the setting of heritage assets / the historic environment designations, as well as the inclusion of text that seeks the submission of a project level HRA of proposals that fall within relevant Impact Risk Zones (IRZs).

4.5.1.2 Are there any new alternatives to consider?

Although the amendments proposed can be considered to offer better security against negative effects, it is not considered that any alternative approach (including reassessment the 2014 MLP Policy approach) is necessary for identification; none that are distinctly different from the proposed approach could be considered compliant with National policy and therefore reasonable.

4.5.1.3 Assessment of Policy DM1

Effect	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
S/T	+	+	+	+	0	+	0	+	+	0	0	0	+	+	+
M/T	+	+	+	+	0	+	0	+	+	0	0	0	+	+	+
L/T	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

It should be acknowledged that significant positive effects are not predicted for any of the Sustainability Objectives as the Policy's site criteria seek to mitigate or offset the direct and indirect effects of minerals related development. It should be acknowledged that there are considered to be no omissions from the Policy criteria in terms of seeking to address any of the Sustainability Objectives, which have been derived specifically for the Plan area and relevant to a minerals plan, and have been worded to ensure that significant positive effects will only come forward where there are real outcomes or gains.

Positive effects have been highlighted where the Sustainability Objectives can be positively met through protection or mitigation. This is true of biodiversity (addressed in DM1 criterion 12), water quality (DM1 criterion 3), flood risk minimisation (DM1 criterion 4), the best and most versatile agricultural land (DM1 criterion 5), air quality (DM1 criterion 1), the historic environment (DM1 criterion 13), landscapes (DM1 criterion 10), road safety (DM1 criterion 8), human health and well-being (DM1 criterion 2), and nuisance and impact on local amenity (DM1 criterion 1). The coverage of these themes, and an explanation of their relevance to minerals planning and operations, is further elaborated on within the Policy's supporting text / reasoned justification. This includes that it must be ensured that there will be no adverse effect on integrity to these sites either alone or in combination with other plans and projects. A project-level Habitats Regulations Assessment will be needed for any sites that fall within IRZs and this is ensured through the Policy and supporting text.

Regarding flood risk, the supporting text outlines that there is the potential to provide additional flood storage areas when carrying out prior mineral extraction, in advance of built development, to create topographies to provide flood storage areas as well as offer sustainable drainage benefits. This 'potential' is however not embedded within any Policy and is therefore not considered strongly within this SA, however the approach would further ensure a joined-up approach to restoration and after-uses to built development.

The Policy criteria can be perceived to not address the minimisation of greenhouse gas emissions, which is included within the Plan's strategic aims as relevant to the winning, working and handling of minerals. The Plan also includes as a strategic priority the need to ensure minerals development makes a contribution towards reducing greenhouse gas emissions, is resilient and can demonstrate adaptation to the impacts of climatic change. The Plan addresses greenhouse gas emissions in a positive way, including through its proposed amendments and as a strategic issue (rather than a development management one); the approach of Policy S3 of the Plan is considered an appropriate mechanism to address such concerns and applies to all proposals regardless of scale. It is considered that

there would be no difference in whole-plan effects regarding climate change objectives should Policy DM1 reiterate any of Policy S3's criteria.

4.5.1.4 Mitigation measures proposed to minimise identified effects

No mitigation measures are proposed to the Plan's Policy DM1 at this stage of the SA.

4.5.2 Policy DM3 Primary and Secondary Processing Plants

4.5.2.1 What amendments have been proposed since the 2014 MLP?

The adopted MLP (2014) considered primary and secondary processing plants separately, within two policies (DM3 and DM4). These are proposed to be merged as the policy requirements for both primary and secondary processing plants are the same.

Policy DM3 is proposed for amendment to cover both processing plants and the wider development to which they relate. A further amendment seeks to add the requirement that restoration of the mineral site should not be compromised in addition to the existing need to not compromise restoration through operation of the processing plant. The Policy also includes text that sets out that the minerals for processing and/or treatment shall be sourced from within the boundary of the mineral working within which the plant is located unless it is demonstrated that there are exceptional circumstances or overriding benefits from sourcing materials from elsewhere.

4.5.2.2 Are there any new alternatives to consider?

It is considered that the Policy is compliant with the NPPF and PPG and therefore no alternatives have been identified for exploration for assessment; any deviation from the approach proposed that is distinctly different (to warrant assessment in this SA), would likely not be compliant and therefore not 'reasonable'.

4.5.2.3 Assessment of Policy DM3

Effect	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
S/T	0	0	0	+	+	0	0	0	0	0	+	0	0	0	0
M/T	0	0	0	+	+	0	0	0	0	0	+	0	0	0	0
L/T	0	0	0	0	0	0	0	0	0	0	0	+	0	0	0

There will be positive impacts on promoting the minerals hierarchy (Sustainability Objective 5) through a non-restrictive policy on the extraction and processing of minerals and the extension of existing sites. This will also ensure positive effects in regard to the sustainable use of minerals (Sustainability Objective 11). There will be positive impacts where the policy

encourages the sustainable use of land (Sustainability Objective 4) by requiring that minerals shall be sourced from within the boundary of the mineral working within which the plant is located unless it is demonstrated that there are exceptional circumstances or overriding benefits from sourcing materials from elsewhere to supplement indigenous supply.

Extending the use of processing plants may preclude certain aspects of final restoration; positive effects are highlighted regarding the Policy's stance on ensuring that final restoration meets the same standards of quality as previously agreed through the planning process. The Policy will have minor positive effects on restoration, striking a good balance between after use and the benefits of sustainable mineral operations; setting a precedent linking processing to the primary extraction on-site and within the timescales of that permission and also ensuring no compromise of the quality of restoration.

There will be no additional impacts on reducing transportation distances of minerals where the policy outlines that minerals shall be sourced from within the boundary of the mineral working in the first instance. This is a positive approach as it effectively sets a precedent that comparatively reduces mineral miles by linking processing to the extraction on-site and within the timescales of that permission.

There are no highlighted effects on biodiversity, water quality, flood risk, air quality, greenhouse gas emissions, the historic environment, landscapes, human health and well-being, through requirements that the plant would not have any unacceptable impact on local amenity and / or the surrounding environment. This approach is consistent with other strategic and development management policies.

4.5.2.4 Mitigation measures proposed to minimise identified effects

No mitigation measures are proposed to the Plan's Policy DM3 at this stage of the SA.

5. The Assessment of the Minerals Local Plan (Site Options)

5.1 The Candidate Sites

This section sets out the appraisal of the candidate mineral extraction sites that have been submitted for consideration (as allocations) through the MPA's call-for-sites process in 2022.

The table below represents the definitive list of sites that have been submitted. All candidate sites are assessed within the SA and a summary of the impacts identified are included within this section. The detailed assessment of the sites is included within Appendix 2 of this Interim SA Report.

Table 8: Candidate mineral extraction sites for consideration

Site Reference	Site address	District	Site area (hectares)	Mineral reserves (million tonnes)
A6	Bradwell Quarry (a)	Braintree	37.50	2.50
A22	Little Bullocks Farm, (a)	Uttlesford	6.90	0.64
A23	Little Bullocks Farm, (b)	Uttlesford	5.50	0.06
A31	Maldon Road	Colchester	25.00	4.00
A47	Bradwell – Monk's Farm	Braintree	84.80	4.00
A48	Bradwell – Grange Farm	Braintree	143.15	12.20
A49	Colemans Farm - Hill Broad Farm Full Site	Braintree	40.74	2.00
A50	Colemans Farm - Eastern extension (Appleford Farm)	Braintree	24.25	0.93
A51	Colemans Farm - North extension (Hill Broad Farm)	Braintree	19.77	0.60

Site Reference	Site address	District	Site area (hectares)	Mineral reserves (million tonnes)
A52	Colemans Farm - Southern Extension	Braintree	4.13	0.11
A54	Whiteheads	Braintree	10.22	0.40
A55	Sheepcotes - Southern	Chelmsford	25.19	1.97
A56	Sheepcotes - Western	Chelmsford	9.88	1.06
A57	Chalk End	Chelmsford	6.60	0.25
A58	Little Smiths	Maldon	3.80	0.31
A59	Lowleys Farm	Chelmsford	75.00	7.50
A60a	Shellow Cross Farm - Chelmsford	Chelmsford	103.00	3.25
A60b	Shellow Cross Farm - Chelmsford	Chelmsford	103.00	3.50
A61	Heckfordbridge – Site 1	Colchester	61.16	5.00
A62	Heckfordbridge – Site 2	Colchester	94.44	8.20
A63	Patch Park, Abridge	Epping Forest	54.00	1.00
A64	Land East of Asheldham Quarry	Maldon	24.30	2.00
A65	Land South of Asheldham Quarry	Maldon	4.00	0.10
A66	White House Farm	Maldon	56.00	4.00
A67	Church Farm	Tendring	21.00	2.00
A68	Crabtree Farm	Tendring	67.72	6.10

Site Reference	Site address	District	Site area (hectares)	Mineral reserves (million tonnes)
A69	Frating Hall	Tendring	47.00	4.00
A71	Lodge Farm	Tendring	11.20	0.80
A72	Martells – Southern Extension	Tendring	16.98	1.17
A73	Martells – Western Extension	Tendring	13.28	0.25
A74	Thorrington Hall Farm	Tendring	105.60	4.70
A75	Land at Orford	Uttlesford	11.50	1.80
A76	Elsenham	Uttlesford	16.80	2.00
A77	Westward Extension to Highwood Quarry	Uttlesford	19.45	1.23
A79	Crown Quarry – North of Wick Lane	Tendring	23.19	1.00
A80	Crown Quarry – South of Wick Lane	Tendring	5.88	0.26
A82	Colemans Farm – Elm Springs Extension	Braintree	15.42	1.00
A83	Colemans Farm – Hole Farm	Braintree	14.17	0.80
A84	Colemans Farm – Appleford Farm North Extension	Braintree	18.40	0.69
A85	Martells – North of Frating Road (East)	Tendring	26.12	1.90
A86	Martells – North of Frating Road (West)	Tendring	28.90	2.00

Site Reference	Site address	District	Site area (hectares)	Mineral reserves (million tonnes)
A87	Martells – East of Slough Lane	Tendring	10.47	0.56
A88	Gurnhams Farm	Tendring	61.00	2.20
A89	Covenbrooke Hall Farm	Braintree	29.53	2.45
A90	Rayne Quarry – Northern Extension	Braintree	13.40	1.00
A91	Land at Chignal St James	Chelmsford	24.10	0.68
A92	Land at Pattiswick Hall Farm – Small Site	Braintree	65.45	3.40
A93	Land at Pattiswick Hall Farm – Full Site	Braintree	130.74	8.20
A94	Land at Highfields Farm	Braintree	34.69	0.75
A95	Land at Bellhouse Fam South	Colchester	12.68	0.83
A96	Rayne Quarry – Southern Extension	Braintree	11.30	0.20
D7	Land at Pond Farm (proposed transhipment site)	Braintree	15.38	N/A

5.2 Site Assessment Overview

The below table shows the impacts of the candidate sites that are raised at this stage of the SA process through their assessment against the criteria included within 3.3 of this Report. Detailed discussion of the impacts is also included within Appendix 2 of this Report.

Table 9: Assessment of candidate mineral extraction sites - overview

Site Ref.	SO1 (a)	SO1 (b)	SO2	SO3	SO4	SO5	SO6	SO7	SO8 (a)	SO8 (b)	SO9	SO10	SO11	SO12	SO13	SO14	SO15
A6	-	0	-	?	-	+	0	0	?	-	-	?/+	0	+	0	-	?
A22	?	0	0	?	-	+	0	0	?/0	0	?	?/+	0	+	?	0	0
A23	-	0	0	?	-	+	0	0	?/0	0	?	?/+	0	+	?	?/-	-
A31	?	-	?	?	?	+	0	0	?	-	?	?/+	0	+	-	-	0
A47	0/?	0	-	?	-	+	0	0	?/0	-	?	?/+	0	+	0	-	-
A48	-	0	-	0/?	-	++	0	0	?	-	?	?/+	0	+	-	-	-
A49	?	-	-	?	?/-	+	0	0	?	-	-	?/+	0	+	-	-	-
A50	?	-	-	?	?/-	+	0	0	?	?	?	?/+	0	+	-	-	0
A51	?	-	-	?	?/-	+	0	0	?	-	?	?/+	0	+	0	-	-
A52	?	-	-	-	?/-	+	0	0	?	?/0	?	?/+	0	+	0	0	0

Site Ref.	SO1 (a)	SO1 (b)	SO2	SO3	SO4	SO5	SO6	SO7	SO8 (a)	SO8 (b)	SO9	SO10	SO11	SO12	SO13	SO14	SO15
A54	?	0	0	?	-	+	0	0	?/0	?	?/0	?/+	0	+	0/?	0	0
A55	?	0	0	?	-	+	0	0	?	?	?	?/+	0	+	0	-	-
A56	-	0	0	0	-	+	0	0	?/0	0	?/0	?/+	0	+	0	?/-	0
A57	0/?	0	0	0	-	+	0	0	?	?/0	?/0	?/+	0	+	-	?	0
A58	-	-	-	?	-	+	?/-	0	?/0	0	?/0	?/+	0	+	-	-	0
A59	-	0	0	?	?/-	++	0	0	?	-	-	?/+	0	+	-	-	-
A60a	-	0	0	?	-	+	0	0	-	-	-	?/+	0	+	-	-	-
A60b	-	0	0	?	-	+	0	0	-	-	-	?/+	0	+	-	-	-
A61	?	-	?	?	?/-	+	0	0	?	-	-	?/+	0	+	-	-	-
A62	?	-	?	?	?/-	++	0	0	?	-	-	?/+	0	+	-	-	-
A63	-	-	0	-	?/+	+	0	0	-	?	-	?/+	0	+	-	-	-

Site Ref.	SO1 (a)	SO1 (b)	SO2	SO3	SO4	SO5	SO6	SO7	SO8 (a)	SO8 (b)	SO9	SO10	SO11	SO12	SO13	SO14	SO15
A64	0/?	-	0	?	-	+	0	0	?	-	?	?/+	0	+	-	-	-
A65	?	-	0	0	?	+	0	0	?	?	?/0	?/+	0	+	-	-	-
A66	?	-	-	?	-	+	0	0	-	?	?	?/+	0	+	-	?	-
A67	-	- -	?	?	?/-	+	0	0	?	-	?/0	?/+	0	+	- -	-	0
A68	0/?	-	?	0	-/- -	++	0	0	-	-	?/0	?/+	0	+	-	?	-
A69	?	-	?	0	-/- -	+	0	0	?	-	?/0	?/+	0	+	-	-	-
A71	-	- -	?	0	-	+	0	0	?	?/0	-	?/+	0	+	- -	?/-	-
A72	?	-	?	?	-/- -	+	0	0	?	-	?/0	?/+	0	+	?	?/-	0
A73	?	-	?	?	?/-	+	0	0	?/0	-	?	?/+	0	+	?	-	0
A74	-	- -	0	?	?/-	+	0	0	?	-	?	?/+	0	+	-	-	-
A75	?	0	?	?	?/-	+	0	0	?/0	-	?	?/+	0	+	-	?	-

Site Ref.	SO1 (a)	SO1 (b)	SO2	SO3	SO4	SO5	SO6	SO7	SO8 (a)	SO8 (b)	SO9	SO10	SO11	SO12	SO13	SO14	SO15
A76	?	0	?	?	-	+	0	0	?/0	-	?	?/+	0	+	?	-	-
A77	?	0	?	?	-	+	0	0	?/0	?	?	?/+	0	+	0	?	-
A79	?	-	?	?	-	+	0	0	?	-	?/0	?/+	0	+	-	-	0
A80	?	0	?	?	-	+	0	0	?/0	-	?/0	?/+	0	+	?	-	0
A82	?	-	-	?	?/-	+	0	0	?/0	?	?/0	?/+	0	+	0	-	?
A83	0/?	-	-	?	?/-	+	0	0	?	- -	?	?/+	0	+	-	-	-
A84	?	-	-	-	?/-	+	0	0	- -	?	?	?/+	0	+	-	?/-	-
A85	0/?	-	?	?	- -	+	0	0	?	0	?/0	?/+	0	+	-	-	-
A86	?	-	?	?	-/- -	+	0	0	- -	?	?	?/+	0	+	-	-	-
A87	?	-	?	0	-/- -	+	0	0	?	-	?	?/+	0	+	?	?	-
A88	-	-	?	?	?/-	+	0	0	?/0	-	?	?/+	0	+	-	-	-

Site Ref.	SO1 (a)	SO1 (b)	SO2	SO3	SO4	SO5	SO6	SO7	SO8 (a)	SO8 (b)	SO9	SO10	SO11	SO12	SO13	SO14	SO15
A89	0/?	0	-	?	-	+	0	0	?/0	?	?/0	?/+	0	+	-	-	-
A90	?	0	?	?	-	+	0	0	?/0	-	?	?/+	0	+	?	-	-
A91	0/?	0	0	?	-	+	0	0	?	?/0	?/0	?/+	0	+	?	?	-
A92	-	0	-	0	?/-	+	0	0	?	?	-	?/+	0	+	- -	-	-
A93	-	0	-	0/?	?/-	++	0	0	?	-	-	?/+	0	+	- -	-	-
A94	?	0	-	?	?/-	+	0	0	-	- -	?	?/+	0	+	- -	-	-
A95	-	-	?	?	?/-	+	0	0	?	- -	-	?/+	0	+	?	-	0
A96	-	0	?	?	?/-	+	0	0	?	?	-	?/+	0	+	-	-	0
D7	0	-	-	?	-	0	0	0	?	-	?/0	?/+	0	0	-	-	0

5.3 Summary of potential Significant Effects identified

The significance of effects at this stage of the plan-making process, and the iterative SA process, is raised cautiously and it should be acknowledged that further Plan evidence, newly submitted material by site promoters, or consultation comments from statutory bodies could mean that effects are re-assessed within future iterations of the SA.

This summary identifies only those effects that have, at this stage, the potential to be 'significant' in regard to the sustainability objectives and the criteria against which sites have been assessed. It should be acknowledged that at this stage none of the sites assessed have been proposed for allocation within the Plan and similarly there is no known preference for any sites over others.

This creates a 'level playing field' at this stage and the assessment of the sites within this SA Interim Report, as well as within the 'Draft Assessment of Candidate Sand and Gravel Sites' document, is included to aid the selection of sites within future Plan iterations and also enable site specific policies to be formulated for such allocations. These site allocation policies will include criteria that must be adhered to by applicants (in addition to thematic Plan policies) at the planning application stage in order to mitigate, or minimise, impacts of development / extraction to an acceptable level. It may be that effects highlighted as significant are lessened through such policies or provide a starting point for discussions with the applicants of the candidate sites if they wish to amend their proposals. It is worth noting here that all candidate sites submitted through the MPA's call-for-sites process have been assessed, and none have been removed from consideration or 'sieved out'; they are all considered 'reasonable alternatives' at this stage.

The potentially significant effects highlighted within the assessment of sites within this SA cover a range of themes, but broadly cover the following sustainability objectives:

- SO1(b): Biodiversity – 'Likely Significant Effects' on Habitats sites.
- SO4: Soils – The best and most versatile agricultural land.
- SO5: Meeting mineral needs.
- SO8(a): The Historic Environment – archaeology.
- SO8(b): The Historic Environment – historic buildings.
- SO13: Transport and access

The following sub-sections consider the potential effects raised in the above bullet points.

5.3.1 Potential effects on Habitats sites

The potential for significantly negative effects has been identified for the following sites:

- Site A67 – Church Farm (Tendring)

- Site A71 - Lodge Farm (Tendring)
- Site A74 - Thorrington Hall Farm (Tendring)

The HRA 'screens in' in the possibility of Likely Significant Effects on the integrity of a Habitats site, should any of these sites be allocated and subsequently developed as proposed. The effects relate to water quality, and on Functionally Linked Land, but are most keenly identified in regard to 'direct disturbance' on breeding and wintering birds for Brent Geese and Golden Plover. These species underpin the designation of the Colne Estuary SPA and Ramsar site (and Habitats site), which are within 400m of these candidate sites in Tendring. Direct disturbance (aside from any effects on Functionally Linked Land to this Habitats site) is considered by the HRA as these effects arising from quarrying and after uses, such as noise, light, dust, vibration, human presence and vehicular traffic.

Detailed studies will be required as part of the Appropriate Assessment (AA) to assess whether these site options would have an 'Adverse Effect on Integrity' (AEOI) of the Colne Estuary Habitats site and whether these could be avoided with appropriate mitigation (likely to be of a significant level).

5.3.2 Potential effects regarding soil quality

The potential for significantly negative effects has been identified for the following sites:

- Site A85 – Martells, North of Frating Road (East) (Tendring)
- Site A86 – Martells, North of Frating Road (West) (Tendring)
- Site A87 – Martells, East of Slough Lane (Tendring)

The above candidate sites in Tendring all contain Grade 1 quality soil, which is identified as of an 'excellent quality'. Grade 1 land in context is that which gives a high yield or output, has the widest range and versatility of use, produces the most consistent yield, and requires little input.

Development of such agricultural land is not precluded by national policy or guidance, and it should be considered that any restoration to an environmental or social benefit can be equally desirable to a return to the 'best and most versatile' land. It may be possible that biodiversity-led restoration of such land could be delivered, should the site(s) be allocated and developed as proposed, that is still capable of supporting an agricultural after use.

5.3.3 Meeting mineral needs

The potential for significantly positive effects has been identified for the following sites:

- Site A48 – Bradwell, Grange Farm (Braintree)
- Site A49 – Colemans Farm, Hill Broad Farm (Full Site) (Braintree)

- Site A62 – Heckfordbridge, Site 2 (Colchester)
- Site A93 – Land at Pattiswick Hall Farm (Full Site) (Braintree)

These sites have been identified as enabling significantly positive effects in regard to meeting mineral needs. They represent the largest candidate sites, by size of mineral reserve, that have been submitted for consideration.

5.3.4 Potential effects regarding archaeology

The potential for significantly negative effects has been identified for the following sites:

- Site A84 – Colemans Farm, Appleford Farm (North Extension) (Braintree)
- Site A86 – Martells, North of Frating Road (West) (Tendring)

In the instances of both sites, either a Scheduled Monument lies within the site or adjacent to the site which subsequently lie within areas of archaeological features. Both sites are also identified as having further potential to contain Palaeolithic archaeological remains and Pleistocene faunal and palaeoenvironmental remains, which are more widely identified across many of the candidate sites.

It should be noted that the two sites are not in close proximity to each other, so their impacts can be considered in isolation i.e. harm has not been identified from each site to the same asset of the historic environment.

5.3.5 Potential effects regarding historic buildings

The potential for significantly negative effects has been identified for the following sites:

- Site A83 – Colemans Farm, Hole Farm (Braintree)
- Site A94 – Land at Highfields Farm (Braintree)
- Site A95 – Land at Bellhouse Fam South (Colchester)

The allocation of the above sites and their development as proposed, have been identified as having the potential for significant effects on nearby listed buildings. These effects are identified within the MLP's Site Assessment Report (2024) and historic buildings assessments undertaken by Place Services' Historic Buildings Consultants. In the instance of site A83, and the proposed quarrying works would result in the fundamental alteration of the last surviving part of the Grade II* Listed Hole Farmhouse's original setting. In the case of A94, there would be ranging harm on numerous assets including the Grade I Listed Parish Church of All Saints, and this is also the case for the allocation and subsequent development of site A95 (in regard to the Grade I listed Church of St Michael and All Angels).

It should be noted however, that the potential for mitigation (and its ease) is identified within the MLP's Site Assessment Report (2024). The assessments at this stage are cautious,

including within this SA, and effects may be lessened through the application of Policy considerations that exist within the Plan or can be developed in future iterations.

5.3.6 Potential effects regarding transport and access

The potential for significantly negative effects has been identified for the following sites:

- Site A67 – Church Farm (Tendring)
- Site A71 – Lodge Farm (Tendring)
- Site A92 – Land at Pattiswick Hall Farm (Small Site) (Braintree)
- Site A93 – Land at Pattiswick Hall Farm (Full Site) (Braintree)
- Site A94 – Land at Highfields Farm (Braintree)

Numerous candidate sites at this stage have little information regarding access and transport arrangements in comparison to, for instance, a planning application that has been submitted alongside a Transport Statement / Assessment which would provide more detailed information. Nevertheless, a total of five sites have been identified with the potential to have limitations as to their suitability on grounds of transport and access.

In the majority of cases, concerns regard the ability for HGVs to connect satisfactorily with the Main Road Network, as access roads would likely be unsuitable, via a Secondary Distributor in Essex County Council's Development Management Route Hierarchy, or directly onto strategic roads that fall within the remit of National Highways. For instance, in the case of sites A92 and A93, the creation of a new access onto the A120 is contrary to Department for Transport Circular 1/2022 Strategic Road network and the delivery of sustainable development and there have been initial policy objections from National Highways, who were consulted as part of the work undertaken within the MLP Site Assessment Report (2024).

6. Cumulative, Synergistic, Temporal and Transboundary Effects

6.1 Introduction

As set out earlier in this Report, relationships between different elements of the Plan are assessed in order to highlight any possible strengthening or weakening of impacts from their implementation together. Cumulative effects respond to impacts occurring directly from two different elements together, and synergistic effects are those that offer a strengthening or worsening of more than one element of the Plan that is greater than any individual impact. Additionally, any cumulative impacts with other plans or projects are highlighted within this assessment.

6.2 Cumulative, Synergistic & Temporal Effects at the Plan Level

6.2.1 Policy Appraisals - Environmental Effects

The effects of the individual Policy appraisals are assessed as positive in consideration of the context and remit of a minerals plan, in so far as the Plan seeks sustainable minerals development in the first instance, alongside the mitigation or offsetting of any resulting environmental or social impacts that might otherwise occur.

The potential for positive cumulative outcomes have been identified in the long term regarding landscapes and biodiversity, due to the enhancements that are encouraged through restoration including biodiversity net gain. In the short-to medium term however, associated with periods of extraction and the lifetime of operations, impacts at this stage are identified as cumulatively negative. This is a notional conclusion in regard to landscape, associated with the change to landscapes resulting from extraction. In regard to biodiversity and ecology, Likely Significant Effects on Habitats sites are raised within the HRA and until that time that the Plan embeds any mitigation from the forthcoming AA, cumulative effects within the context of the Plan and also in-combination with other plans and programmes can not be ruled out.

Positive cumulative impacts have been identified regarding the best and most sustainable use of resources and aggregate recycling, associated with a focus on recycling and re-use and moving the treatment of waste up the waste hierarchy. Impacts are positive but not significantly so, regarding the Plan's waste management policies, due to the possibility of a need to backfill mineral voids in restoration proposals.

6.2.2 Policy Appraisals - Social Effects

There will be no cumulative effects regarding the social objectives in line with a desire to minimise impacts in the first instance, and the nature of effects at the individual site level.

6.2.3 Policy Appraisals - Economic Effects

There will be no cumulative effects on the economic objectives in line with the 'single-issue' nature of minerals local plans. The Plan enables economic growth throughout the plan area in terms of built development, however has no other remit. Please see sub-section 6.4.1 below for more information on the MLP's relationship with LPA Local Plans.

6.3 Transboundary Effects

Transboundary effects are those that can be felt outside the Plan area and off-site from individual operations. In undertaking the SA, and in consideration of all available evidence, the principal area where transboundary effects are identified as possible, is the findings of the Habitats Regulations Assessment (HRA). The HRA work has identified that 'in-combination' or cumulative effects can not be ruled out on Habitats sites as a result of mineral operations. Of note is the impact on the Epping Forest SAC associated with HGV movements, and other plan and projects that can be expected to increase transport movements through this SAC. These include multiple LPA Local Plan allocations within the SAC's Zone of Influence (ZoI), and infrastructure projects such as the Lower Thames Crossing NSIP. The potential for negative transboundary effects associated with biodiversity are therefore considered to arise from the MLP.

The Plan is considered however to suitably ensure that the direct and in-combination effects of any planning permission that could give rise to HGV movements or any effects on Habitats sites, will be understood at the time of planning applications being submitted, due to the requirement for project-level HRA/AA to accompany proposals within relevant IRZs. These will also identify proposed mitigation, that will then form part of the proposal seeking permission.

6.4 Relationship with Other Plans / Projects

6.4.1 District Level Local Plans

It should be noted that not all districts in Greater Essex have adopted Local Plans at the time of writing, and others are undertaking statutory reviews of their adopted Local Plans. Therefore, there is an ongoing need for authorities to engage in constructive dialogue. Duty to cooperate discussions have been undertaken and are ongoing between ECC as the MPA and those LPAs within the Plan area. These discussions have informed the MLP at this stage.

As set out in the appraisal of Policy S6 and in the assessment of the 'minerals provision figure', the effects of the Plan will have positive implications in responding to future growth, both planned and unplanned. The overall minerals provision figure for the plan-period surpasses that of ten-year rolling sales, and factors in other local factors, such as high housing growth targets at the district level. The Plan's strategy spatially responds to areas of growth in a way that is flexible to each district, rather than the most populous settlements as was previously adopted. Similarly the Plan responds well to ensuring that mineral resources

exist for infrastructure projects (see sub-section 6.4.4 below).

In further support for growth, mineral site after-uses have moved away from solely habitat creation, as was preferred within the adopted MLP (2014), with amendments supporting a wider range of uses on a case by case basis. This now includes restoration to support built development on such sites to support LPA Local Plan growth objectives as well as a better correlation with Green and Blue Infrastructure Strategies and requirements at the district level. Policy S12 requires restoration schemes to reflect strategies across Essex, including Local Plan objectives for growing natural capital and Green and Blue Infrastructure Strategies where relevant. This position is aligned and supports outcomes regarding restoration to potentially higher levels, supporting a wider range of after-uses.

6.4.2 The Adopted Waste Local Plan

The correlation between some elements of minerals and waste planning are vital in meeting Plan objectives, evidenced by the dual role of ECC as the minerals and waste planning authority and the number of joint minerals and waste local plans produced by other county councils. This is particularly important in regard to reducing the use of mineral resources and promoting the waste hierarchy through the re-use and recycling of aggregates produced as a waste product. This can similarly reduce the need to extract minerals, and the associated environmental and social effects that can result from this process.

The Essex & Southend-on-Sea Waste Local Plan (WLP) was adopted in 2017, and actively promotes the waste hierarchy; to reduce, re-use, recycle, compost, and recover energy from waste with waste disposal representing the last and least desirable step. As set out in the MLP, Policy S4 - Reducing the Use of Mineral Resources applies to all development across Essex and seeks on-site recycling and the re-use of construction, demolition and excavation wastes on redevelopment sites, where this is environmentally acceptable. Crucially also, the MLP seeks to enable and encourage the construction and minerals industries to provide enough investment in creating and maintaining an effective network of aggregate recycling facilities/ sites across the County to meet demand. This is covered within the MLP in Policy S5 - Creating a Network of Aggregate Recycling Facilities and New Transhipment Sites, which safeguards existing aggregate recycling sites for the life of their permission.

Where inert landfilling is unavoidable, and needed for restoration projects, the WLP allocates a number of sites for this purpose[1]. The WLP identifies that an insufficient number of suitable sites are available within the Plan area to address waste arising forecasts, and a locational criteria Policy (Policy 9 in the WLP) exists with a preference towards allocated (preferred and reserve) sites within the MLP. The WLP states that, 'with regard to inert landfills specifically, these facilities are typically required both as a way of disposing of inert waste and as a means to ensure the satisfactory restoration of existing mineral voids. The inert landfill allocations have been identified on the basis of both geographic distribution, to reflect that inert waste is normally uneconomic to transport long distances, and their restoration

[1] These are: Blackley Quarry, Gt Leighs, Chelmsford (L(i)10R); Bellhouse Landfill Site, Colchester (L(n)5); Little Bullocks Farm, Gt and Lt Canfield, Uttlesford (L(n)7R); Dollymans Farm, Basildon/Rochford (L(i)16); Fingringhoe Quarry, Colchester (L(i)15); Newport Quarry, Uttlesford (L(i)17R); Sandon, Chelmsford (L(i)6); Slough Farm, Ardleigh, Tendring (L(n)1R); and Sunnymead, Elmstead & Heath Farms, Tendring (L(i)5).

requirements.'

The relationship between the MLP at this stage and the WLP regarding inert landfilling focuses on MLP Policy S12 - Mineral Site Restoration and After Use. This Policy proposes a change of approach regarding restoration, specifically regarding the levels to which voids should be restored. The adopted 2014 MLP included a preference that voids be restored to a low level with no landfill in the first instance and if that is not possible, then at a low level with no more landfill than is essential and necessary. A final case scenario was included that landfill would be acceptable subject to the requirements of the Waste Local Plan (WLP) if the site is 'preferred' within the WLP. Text pertaining to this is proposed for removal through the new MLP at this stage, with a new position of mineral extraction sites to be 'infilled with imported materials only at a scale necessary to achieve a beneficial restoration that outweighs any harm caused.' The final restoration level of sites will now generally be decided on a case-by-case basis but must be sympathetic to the surrounding landscape with infilling only at a scale considered necessary to achieve beneficial restoration.

In response to the WLP's concession that landfilling of inert waste is necessary to some degree, and that within that plan not enough capacity was identified at suitable (allocated or safeguarded) sites, the amendments to the MLP ensure that existing site restoration can be more flexible in regard to ensuring new sites for landfill are required. This ensures compatibility between the two local plans and can be seen to ensure a reduction in the transportation of waste or 'waste miles' as compared to a scenario where inert landfill capacity was not available in Essex due to low level restoration preferences.

6.4.3 The South East Inshore Marine Plan

Over half of all aggregates used in construction in London are derived from marine sources. Therefore, protecting landing facilities, and identifying the difference in safeguarding is a key objective of this emerging plan, which seeks to expand terrestrial legislation to the marine environment and encourages the use and development of these vital landing facilities. Policy SE-AGG-1 of the South East Inshore Marine Plan safeguards marine aggregate licence areas from other activities, unless it is demonstrated that the other activities are compatible with marine aggregate extraction, and Policy SE-AGG-2 safeguards marine aggregate 'Exploration and Option Agreement areas' to enable the aggregate industry to explore defined areas in order to identify commercially viable aggregate resources.

With the co-operation of the MMO there is the theoretical possibility that the proportion of marine–won aggregates used in Essex could be increased in order to reduce the land-won requirement. Such scope for an increase exists within the East Inshore and East Offshore marine Plans. The Inspector's Report for the examination of the MLP in 2014, stated at that stage, 'correspondence between ECC and the MMO demonstrates that, although there are licensed marine aggregate extraction sites close to the Essex coast, there is no guarantee that these will be worked. The reasons given for this are high operational costs and environmental and regulatory constraints. This correspondence also indicates that there is no guarantee that the output of these marine sites would be directed to the Essex market or even landed in the UK at all… It is thus evident that it would be impractical to quantify a potential increase in the proportion of marine aggregate use in Essex within the timescale of

the first review of the Plan.'

The MLP explores whether marine won aggregates can reliably contribute to aggregate provision. The notion of marine aggregates contributing to overall apportionment was ruled out, due to insufficiently robust data. Marine wharf facilities at Parkeston Quay and Ballast Quay have been safeguarded in previous iterations of the MLP, in line with the South East Inshore Marine Plan's objective of protecting and safeguarding landing facilities, however Parkeston Quay does not manage aggregate in the Plan area and no proposal to do so has materialised, and Ballast Quay exports material only in line with the lifetime of operations at Fingringhoe Quarry. The MLP at this stage includes a suitable framework to enable the development of new transhipment sites (including those that may come forward at Parkeston Quay) within Policy S5.

In line with this, no cumulative negative effects or conflicts are identified at this stage of the SA process between the MLP and the South East Inshore Marine Plan. The scope for positive future effects associated with marine won aggregates being landed in Essex and contributing to the landbank for aggregates is uncertain at this stage in response to a lack of suitable sites operating as such, however Policy ensures that the potential for cumulative positive effects exists.

6.4.4 Infrastructure Projects / Schemes

Although the emergence of numerous Nationally Significant Infrastructure Projects and major infrastructure schemes in Essex is apparent, the Inspector of the MLP in 2014 indicated that there is no direct / quantitative evidence at this stage to suggest that this will generate extra demand for aggregates within and from Essex. Nevertheless, a strategic priority of the Plan is to make 'planned provision through site allocations for a steady and adequate supply of aggregates and industrial minerals to meet identified national and local mineral needs in Essex during the plan-period, whilst maintaining landbanks at required levels.'

The MLP identifies plan provision for sand and gravel at over the ten year rolling sales average, with a 20% buffer. The Plan states that, 'During the Plan period a significant amount of growth and a range of major infrastructure projects are proposed to be developed, which will impact the minerals needs for the area. The current major growth locations are Basildon, Braintree, Chelmsford, and Colchester, a number of local planning authorities in Essex are working together on the production of Joint Strategic Plans. When these plans are adopted, they may impact on historic patterns of growth. The current major growth locations will continue to be the main drivers of significant economic and housing growth in Essex in the short term. They will be the focus for employment, retailing and other commercial activities, education, health care, administration, culture, and tourism. They will continue to provide good access to interchange facilities for public transport serving both urban and inter-urban travel. Additional growth will be focussed on the market and coastal towns elsewhere in the County. The Growth Locations and Projected Growth in Essex 2025-2040 Topic Paper examine the level of growth which we are planning for in the County, and the associated impacts upon the amount of mineral development required to meet our needs.'

In a procedural sense, the Plan contains policy regarding borrow pits to also meet the need for aggregates for infrastructure projects / schemes. Borrow pits are where extraction takes

place over a limited period for the exclusive use of a specific construction project. The MLP sets out the position that proposals for borrow pits, linked to significant infrastructure projects, will be assessed on a case-by-case basis. The Plan can therefore be seen to support infrastructure projects within the Plan area.

7. Conclusions

7.1 'Whole Plan' Effects by Sustainability Theme

The conclusions of this SA are outlined within the following sub-headings, each of which corresponds to a thematic Sustainability Objective. The conclusions are drawn from an analysis of the individual policy appraisals within this Report, as well as the cumulative, synergistic, and temporal assessment work undertaken. At this stage, and without any identified site allocations for mineral extraction or transhipment, the conclusions focus on the Plan's policy framework.

7.1.1 Biodiversity

Short-Medium Term Effects	Long Term Effects
Uncertain / significantly negative effects	Positive effects

The Plan's effects on biodiversity have been assessed as uncertain but with a degree of caution that 'significantly negative' effects may occur in the short-medium term associated with extraction. There is a strong possibility of positive outcomes in the long term, post-restoration of mineral extraction sites. These short-medium term effects are derived from the findings of the HRA work accompanying the MLP at this stage, which raises the potential for direct and indirect effects from possible new extraction sites dependent on location. These effects can be related to a range of impact pathways, land which is functionally linked to Habitats sites, and also direct disturbance to Habitats sites should those sites within 400m of these designations be allocated in the future. Additionally, effects on Epping Forest SAC (a 'Habitats site') are raised within the HRA associated with nitrogen deposition from lorry transportation to and from quarries 'in-combination' with other Plans and programmes. Further advice is being sought from Natural England regarding such effects. It should be noted however that some effects regarding Habitats sites have been ruled out in the HRA, as suitable mitigation has been embedded into MLP policy. On this matter, it should be noted that any forthcoming site allocations will still require planning permission and to adhere to the Plan's policies, which includes where relevant the submission of a project-level HRA/AA to determine the significance of effects on Habitats sites from detailed schemes.

Separate to this, positive effects on biodiversity could be realised in the long term and possibly after the plan period in many cases, associated with restoration and after-uses that require biodiversity net gain. The Plan ensures alignment to District-level Green and Blue Infrastructure studies in restoration schemes, which is likely to ensure some biodiversity benefits, as well as ensuring net gains as a minimum.

7.1.2 Water quality and resources

Short-Medium Term Effects	Long Term Effects
Uncertain / neutral effects	No effects

There is the possibility that minerals extraction / activities can lead to adverse impacts on groundwater conditions, and also water quality associated with impact pathways to Habitats sites as identified through the HRA's assessment of site options. At this stage of the Plan making process, and without the identification of site allocations with site-specific policies that seek to address on-site concerns, it is difficult to gauge the impacts on water quality which are largely location specific.

Nevertheless, the assessment of Policy DM1 – Development Management Criteria indicates positive effects where Sustainability Objective 2, regarding water quality, can be positively met through protection or mitigation. Neutral effects are highlighted through an approach to assessment that acknowledges that minerals activities can not ensure that existing water quality is improved, and that the best possible effect is to seek a neutral outcome from the baseline position.

7.1.3 Flood risk

Short-Medium Term Effects	Long Term Effects
Uncertain / neutral	Uncertain / positive

As the Plan indicates, sand and gravel working is considered 'water compatible development' and mineral working and processing is 'less vulnerable' to flood risk, however some elements of development such as site compounds and access roads will need to be directed away from high risk areas. A Strategic Flood Risk Assessment (SFRA) has been undertaken for the MLP at this stage to inform the future selection of site allocations and the development of any site allocation specific policies. With this in mind, a degree of uncertainty is highlighted in the short-medium term until the allocations are known.

At the planning application stage however, which all future site allocations will need to go through, the Plan's DM1 covers the requirements of proposals. The MLP includes that proposals for minerals development will be permitted subject to it being demonstrated that development would not have an unacceptable impact, including cumulative impact with other developments, upon flood risk. Further, supporting text outlines that applications need to demonstrate that any dewatering processes will not affect flood risk, and evidence should be included within a surface water drainage strategy that accompanies any application.

Within this SA, neutral effects are therefore also highlighted through this approach to assessment that acknowledges that minerals activities can only mitigate impacts, which in the case of flood risk includes those at the individual proposal level and cumulatively with other development. It is considered that the best possible effect is again to seek a neutral outcome from the baseline position.

It should be noted that the Plan, in consideration of its flexible approach to after-uses, adds that the potential to provide additional flood storage areas could be particularly advantageous when carrying out prior mineral extraction, in advance of built development, to create topographies to provide flood storage areas as well as offer sustainable drainage benefits. This could ensure long term positive implications.

7.1.4 Soils / agricultural land

Short-Medium Term Effects	Long Term Effects
Uncertain	Uncertain

The requirement for new allocations for mineral extraction identified within the MLP at this stage, and the subsequent assessment of candidate sites, raises the potential for the short-medium term loss of the 'best and most versatile land' (BMV) in the Plan area. This potential extends from Grade 3 agricultural land, to Grade 1 and there is no guarantee that restoration proposals will see a return of this soil quality.

Policy S12 outlines the Plan's requirements concerning restoration, including to agricultural land. The adopted MLP (2014) approach has a focus on agricultural after-uses alongside habitat creation. Such schemes may still come forward, however this is not the sole focus of preferred restoration proposals within the new Plan, which is more flexible to a range of uses on a case-by-case basis. It should be noted however that many after-uses, including habitat creation, need not be incompatible with restoration to agriculture and BMV.

This is acknowledged within the Plan, which sets out that land of the best and most agricultural value should be capable of being restored back to the best and most versatile agricultural land, though the proposed after-use need not always be for agriculture. This is compliant with the requirements of the PPG and considered in isolation can ensure positive effects. Effects are not anticipated as being significant however, and general uncertainty is raised as it is not yet possible to determine the specific after-uses of forthcoming planning applications at this stage.

7.1.5 Minerals supply

Short-Medium Term Effects	Long Term Effects
Significant positive effects	Significant positive effects

The Plan seeks to ensure a 'steady and adequate' supply of minerals throughout the Plan period, through a plan-led approach of ensuring provision can be met through new allocations, albeit these are undecided at this stage. Plan provision is above the required ten-year average of rolling sales, with a 20% buffer or 'uplift'.

The provision figure maintains a buffer between Plan provision and actual sales, such that the Plan can respond to any sudden uplift in sales. Further, this approach responds to the NPPF which states that 'plans should positively seek opportunities to meet the development needs of their area and be sufficiently flexible to adapt to rapid change'. With regard to the MLP, the 'development needs' that the plan is to service relates to the provision of sufficient aggregate to support growth and development. It should be noted however that the Plan's mineral provision figure, and its forecasted provision rate of 3.98mtpa, is not a 'target', nor has it created a situation in Essex where sales have increased to match this figure. Sales of sand and gravel are market-led, and should sales not match the provision rate, it translates to the reserve.

This SA also makes the assessment that the Plan's position on prior extraction in MSAs / MCAs for non-mineral developments (now 'required') has the potential to increase minerals extracted as windfalls, i.e. resource that is in addition to that planned at site allocations and existing operating sites. There will therefore likely be significant positive effects in regard to mineral supply across the lifetime of the Plan.

7.1.6 Air quality

Short-Medium Term Effects	Long Term Effects
Uncertain effects	No effects

A Health Impact Assessment (HIA) at the Plan level has been undertaken for the MLP as amended. This 'strategic' HIA concludes that the extent of health impacts arising from mineral activities are more suitably identified at the application stage. The Plan includes that where relevant a Health Impact Assessment (HIA) may be required to accompany any planning application. HIAs will need to address issues of nuisance and amenity, where they correlate to health impacts, such as routeing, dust, air quality, noise, and safety. The Plan is therefore assessed as ensuring the impacts of minerals development as they may impact on health are an understood consideration of individual applications. Policy DM1 of the Plan

further ensures that health related impacts are understood at the application stage, with the added consideration of cumulative effects with other developments.

Associated with highways and transportation, Policy S11 offers a stance on air quality, stating that 'where the movement of minerals are by road, the increase in traffic movement and effects on air quality shall be in accordance with published highway design guidance and national air quality objectives and strategies.' How this is sought to be achieved is reflected through the Plan's criteria pertaining to Transport Statements or Transport Assessments. These ensure that for applications for proposals reliant on road transportation, that the road network is appropriate to accommodate that use and that vehicle traffic use appropriate routes, amongst other considerations. The stance of the Policy seeks to ensure 'no effect', also acknowledging the correlation between traffic movement and air quality.

Nevertheless, it is assumed that there would be an increase in transport movements (and therefore emissions) from any and all development. It is difficult at this stage to substantiate any direct transport related air quality effects occurring from the Plan or subsequent minerals activities, especially in consideration of the fact that many minerals activities are temporary. Available evidence regarding air quality, such as diffusion tube monitoring at key locations, does not and cannot isolate emissions by vehicle type or destination. As such, 'uncertain' effects are cautiously highlighted for air quality in the short-medium term, reflecting the lifetime of permissions. The effect of a proposal regarding air quality is likely to be better understood at the site level and at the planning application stage, through the requirements of the Policy and subsequent Transport Assessments / Transport Statements. This would include consideration of proposed mitigation.

7.1.7 Climate change

Short-Medium Term Effects	Long Term Effects
Neutral effects	Positive effects

The Plan seeks to ensure that 'all minerals development is located, operated and managed whilst having regard to climate change mitigation and adaptation, so the County plays its part in reducing greenhouse gas emissions and is resilient to potentially more extreme future weather conditions' as included in the Plan's Vision.

In terms of Plan Policy, Policy S3 set the framework for climate change. The Policy touches on how development proposals can meet Plan objectives, which extend to minimising greenhouse gas emissions and resilience for the lifetime of the development (including restoration and after-care). As minerals operations are temporary, the effects of wider positive outcomes are therefore limited. The minimisation of any negative effects of proposals would therefore lead to neutral outcomes in the short-medium term, reflective of the lifetime of operations, although where proposals include permanent buildings, these are required to be built to be Net Zero Carbon in operation, be fossil fuel free, and generate renewable energy on-site to at least match annual energy use.

Further, the potential for minor long-term positive effects exists in the form of a joined-up approach to restoration and after-uses associated with Green and Blue Infrastructure Strategies at the LPA level. Further, Policy S3 sets out that 'The Mineral Planning Authority will support minerals development which increases the resilience of communities and infrastructure to climate change impacts.' This considered, positive long-term effects have been highlighted in this assessment.

7.1.8 The historic environment

Short-Medium Term Effects	Long Term Effects
Uncertain / neutral effects	Neutral effects

It can be considered that the majority of the Plan's effects on the historic environment would be at the site level and identifiable only once site allocations are decided in future iterations. The assessment of the candidate sites, undertaken to aid the MPA's site selection process, has identified many instances of potential harm both above and below ground. These are isolated to specific sites, with little conclusion as to cumulative effects, i.e. on-site mitigation would be needed to make some sites acceptable. This leads to the identification of uncertainty in the short-medium term, with the potential for negative effects associated with extraction until that time that sites are identified and site-specific allocation policies drafted.

Policy S10 of the Plan (Protecting and Enhancing the Environment and Local Amenity) states that, 'applications for minerals development shall demonstrate that appropriate consideration has been given to public health, wellbeing and safety, amenity, quality of life of nearby communities, and the natural, built, and historic environment. Appropriate mitigation measures shall be included in the proposed scheme of development to ensure that no unacceptable adverse impacts would arise.' This position ensures that mitigation would be forthcoming in the first instance, with an additional requirement for enhancements to be sought.

Further, Policy DM1 of the Plan as amended states that, 'proposals for minerals development will be permitted subject to it being demonstrated that the development would not have an unacceptable impact, including cumulative impact with other developments, upon the historic environment including heritage and archaeological assets and any contribution made by their setting.' This is a similar approach to that of Policy S10, however the supporting text to Policy DM1 offers further elaboration in what this means to a developer. Paragraph 5.33 of the amended MLP states that, 'applicants preparing proposals for mineral development should refer to Historic Environment and Historic Landscape Character Assessments, local plan evidence base studies, Historic England records and information held on the Scheduled Ancient Monument Record before submitting an application.' Regarding below-ground assets, Paragraph 5.34 states that, 'to safeguard presently unknown remains, an archaeological assessment should be carried out by the developer if an area is likely to be of high archaeological potential (as implied by the Historic Environment Record). The assessment must be carried out before a planning application is

submitted.'

The two relevant policies, notwithstanding those links between landscape and the historic environment, offer neutral outcomes in response to a need to understand the scope of any harm at the planning application stage with the outcome of mitigating effects. There is considered little scope for long-term enhancements from the Policy framework, in so far as this is not covered with any preferred direction; it is considered unlikely that mineral operations would be permitted in the first instance should any harm be significant.

7.1.9 Landscape

Short-Medium Term Effects	Long Term Effects
Uncertain effects	Uncertain effects

The extraction of minerals inevitably leads to concerns surrounding landscapes, in the short-medium term at least. In the long term however, restoration schemes can ensure that landscapes are at best improved and at least returned to a similar land use and form to those pre-extraction. Effects are more appropriately identified, and identifiable, at the site level associated with site allocations. These are yet to be determined, although this SA and other Plan evidence base, has assessed all the candidate sites submitted for consideration. A number of these sites have been identified as having negative impacts on landscape and landscape features. This leads to uncertainty in the short-medium term at this stage, with the potential for negative effects.

As they inevitably occur on greenfield land, the landscape impact, or change, associated with mineral extraction sites will correspond to the number of extraction sites required. Of further consideration is the correlation between aggregate recycling as a mineral operation and its relationship to, and as part of, the waste hierarchy ensures the sustainable use of land and resources. This approach is intended to minimise the number of extraction sites needed. Similarly the Plan's approach to 'requiring' prior extraction on non-mineral development sites within the MSA / MCA, rather than merely 'considering' it (as included within the adopted MLP (2014)) increases the likelihood of resource being extracted as or through windfalls. This again seeks to minimise the need for extraction sites which would limit the negative effects on landscapes.

In the longer term, Policy S12 ensures that restoration is now outcome led, through the proposed omission of the hierarchical approach as adopted in the 2014 MLP. The focus can now be seen as less on restoration to low levels and more about after-use to ensure net gains in biodiversity, but also health and well-being improvements. It is proposed that the final restoration level of sites will now generally be decided on a case-by-case basis, however must be sympathetic to the surrounding landscape with infilling only at a scale considered necessary to achieve beneficial restoration. Restoration to higher levels, if forthcoming, could also see landscapes restored closer to original pre-extraction levels, offering positive effects in the context of the Policy assessment, yet uncertainty at the whole

Plan level in the absence of any commitment to such schemes in specific areas. Further uncertainty is assessed in conclusion, where the Policy's supporting text allows the possibility for restoration to facilitate built development, such as housing or employment uses, if consistent with District / Borough Local Plan objectives. Although it is not anticipated that this would necessarily be frequently forthcoming, this would see some irreparable loss to landscapes. This considered and on balance, uncertain effects are assessed of the Plan as whole.

7.1.10 Economic development, including jobs arising from minerals activities

Short-Medium Term Effects	Long Term Effects
Positive effects	Positive effects

In concluding the economic effects of the Plan, the possible effects on the mineral industry are considered, alongside the economic benefits that can be assumed from the Plan's mineral provision figure and associations with county-wide growth.

It is considered that the effects on increasing jobs in the mineral industry will be marginal to neutral, in line with less transportation of mineral in response to the Plan's locational preference for minerals infrastructure and the objective of reducing mineral miles, and also the possibility of restoration proposals now being permitted for a wider range of after-uses. Where employment through transportation can be seen to be minimised, jobs within restoration proposals may increase.

The mineral provision figure can be seen to offer flexibility should any uplift associated with housing and employment growth be forthcoming, as is indicated through LPA housing requirements in Greater Essex. Similarly, various and multiple infrastructure schemes are identified within the County, including National Significant Infrastructure Projects (NSIPS) which are likely to require additional aggregates in the Plan period that may not be captured or calculated in past analysis of sales data. To this extent, positive effects are highlighted at the Plan level regarding economic growth. Effects are not however predicted as significant in consideration of a level of uncertainty surrounding the industry; as sales of sand and gravel are market-led and there is no evidence to support any determination that the availability of minerals stimulates growth in the first instance.

7.1.11 The sustainable use of minerals

Short-Medium Term Effects	Long Term Effects
Positive effects	Significantly positive effects

The Plan, and this SA, consider the mineral provision figure to be necessary in ensuring a steady and adequate supply of minerals. Evidence to support the Plan indicates that provision indicative of a ten-year rolling sales average only may fail to ensure such a supply.

It is important to consider that the 20% buffer included within the Plan's provision figure does not necessarily mean that mineral resources are extracted at a quicker rate than needed and are then lost or necessarily exported from the County. Extraction rates are governed by market forces. Instead, should local mineral need be at a lower rate than the MLP makes provision for, this results in the reserve permitted in the Plan lasting for longer than forecasted, rather than the reserve being used up quicker. The MLP seeks to ensure a supply of minerals that can respond to any uplifts in sales, through a plan-led system. By allocating sites, this ensures that primary extraction can occur on sites that have been selected through a robust selection process and can be considered the most sustainable available at the time.

Of further consideration within this assessment is, as previously discussed, the relationship between aggregate recycling as a mineral operation and the waste hierarchy. The Plan's approach to aggregate recycling facilities, as aligned to that of the Waste Local Plan (2017), ensures the sustainable use of land and resources. This intends to minimise the number of extraction sites needed in the future and ensure the sustainable use of minerals. Similarly the Plan's amended approach to 'requiring' prior extraction on non-mineral development sites within the MSA / MCA, rather than merely 'considering' it (as included within the adopted MLP (2014)) increases the likelihood of resource being extracted as windfalls. Evidence suggests that the currently adopted approach of 'consideration only' to prior extraction has led to the potential of prior extraction not being appropriately assessed. The Plan approach is considered more prescriptive in this regard, and should it result in a higher amount of mineral coming forward through windfalls, this could lead to comparatively less environmental effects in the future than primary extraction sites. This considered, significant positive effects are highlighted in the long term in regard to the Plan's amended approach to ensuring the sustainable use of minerals, in so far as this can be influenced by a strategic Plan.

7.1.12 Restoration and aftercare of mineral sites

Short-Medium Term Effects	Long Term Effects
No effects	Significantly positive effects

The Plan's approach to restoration is assessed at this stage as having significant positive effects in line with a flexible approach that can ensure a wide range of after-uses. The changes ensure that restoration and after-uses can benefit not only environmental tenets of sustainability, but also those related to social and economic themes.

Policy S12 regards restoration and the after-use of mineral extraction sites. As previously set

out, Policy S12 ensures that restoration is now outcome led, through the proposed omission of the hierarchical approach of the adopted MLP (2014). The focus can now be seen as less on restoration to low levels and more about after-use to ensure net gains in biodiversity, health and well-being improvements and also alignment to Green and Blue Infrastructure Strategies at the District-level. It is proposed that the final restoration level of sites will now generally be decided on a case-by-case basis, however must be sympathetic to the surrounding landscape with infilling only at a scale considered necessary to achieve beneficial restoration. This not only seeks gains in regard to environmental and social objectives but is also aligned to the Waste Local Plan (WLP) (2017).

The WLP identifies that an insufficient number of suitable sites are available within the Plan area to address waste arising forecasts, and a locational criteria Policy (Policy 9 in the WLP) exists with a preference towards allocated sites within the MLP. The WLP states that, 'with regard to inert landfills specifically, these facilities are typically required both as a way of disposing of inert waste and as a means to ensure the satisfactory restoration of existing mineral voids. The inert landfill allocations have been identified on the basis of both geographic distribution, to reflect that inert waste is normally uneconomic to transport long distances, and their restoration requirements.' The MLP's approach of considering higher levels of restoration corresponds to this waste capacity gap for inert material i.e. more inert material can be landfilled to ensure restoration to higher levels, again on the proviso that it is the minimum amount necessary for beneficial restoration. This will be determined on a case-by-case basis.

As touched upon in sub-section 7.1.9 above, the Plan also considers built development after-uses, such as housing or employment uses, if consistent with District / Borough Local Plan objectives, offering scope for economic benefits. This, alongside the previously mentioned potential for environmental and social gains, allows for significant positive effects to be highlighted of the Plan.

7.1.13 The sustainable transportation of minerals

Short-Medium Term Effects	Long Term Effects
Uncertain / positive effects	No effects

Associated with highways and transportation, Policy S11 pertains to the need for Transport Statements or Transport Assessments. These ensure that for applications for proposals reliant on road transportation, the road network is appropriate to accommodate that use and that vehicle traffic use appropriate routes, amongst other considerations. The stance of the Policy seeks to ensure 'no effect', acknowledging the importance of traffic movement. Nevertheless, the Plan acknowledges that due to the pattern of infrastructure in the county, there is a necessary reliance on the road network for mineral movements. Similarly, the market ensures that it is not economic to transport minerals significant distances. This is considered a constant that is beyond the remit of the Plan to influence at this stage.

The Plan does respond positively in ensuring that mineral miles are reduced, and that the location of any new mineral infrastructure is located in close proximity to the strategic road network. Similarly, the Strategy of the MLP is to 'provide for the best possible geographic dispersal of sand and gravel across the County', taking into consideration where the resource is located. The Plan seeks to serve areas of development, which is considered a flexible approach in ensuring that aggregate recycling facilities, amongst other minerals infrastructure, is located where development may occur in the Plan area. This theoretically will reduce mineral miles and ensure the sustainable movement of minerals. It should be acknowledged though, that allocations for mineral sites are yet to be determined within the Plan, and much will depend on how areas of growth in the County relate to the most sustainable sites submitted for consideration. Similarly uncertain are restoration proposals or requirements associated with future site allocations, and whether material would need to be imported to ensure an appropriate afteruse.

The Plan is therefore assessed as having uncertain to minor positive effects on the sustainable transportation of minerals through extraction periods, in so far as the Plan can influence the location of proposals. Effects are limited and not significant due to the existing transport infrastructure of the County and nature of the industry, which is market led. This is, as previously mentioned, beyond the remit of the Plan.

7.1.14 Human health and well-being

Short-Medium Term Effects	Long Term Effects
Uncertain / neutral effects	Uncertain / positive effects

A Health Impact Assessment (HIA) at the Plan level has been undertaken for the MLP as amended. This 'strategic' HIA concludes that the extent of health impacts arising from mineral activities are more suitably identified at the application stage. The Plan includes that where relevant a Health Impact Assessment (HIA) may be required to accompany any planning application. HIAs will need to address issues of nuisance and amenity, where they correlate to health impacts, such as routeing, dust, air quality, noise, and safety. The Plan is therefore assessed as ensuring the impacts of minerals development as they may impact on health are an understood consideration of individual applications. Policy DM1 of the Plan further ensures that health related impacts are understood at the application stage, with the added consideration of cumulative effects with other developments.

Nevertheless, candidate sites for potential allocation have been assessed in consideration of the proximity of residential properties. Many of the sites put forward are within 250 of existing properties and any effects regarding health will be required to be mitigated, and also considered as part of the site selection process. Uncertain effects are highlighted at this stage and it is further considered that only neutral best case scenario outcomes could be realised from the effective application of Policy in the short-medium term.

Policy S10 sets the strategic approach of the Plan in ensuring that environmental and social

effects of a proposal are understood at the planning application stage. In terms of outcomes that lead to sustainability benefits, the potential for positive long-term effects are highlighted regarding human health, where the Policy requires applications to demonstrate that opportunities have been taken to improve and enhance the environment and amenity as an outcome of final restoration. Possible positive long-term effects are also highlighted regarding restoration that offers the best sustainability benefits, including open space and / or recreational opportunities as included within Policy S12. Despite this, uncertainty is raised at this stage where the after use of any future site allocations is currently unknown.

7.1.15 Nuisance and impact on local amenity

Short-Medium Term Effects	Long Term Effects
Uncertain / neutral effects	No effects

A strategic priority for minerals development, as outlined in Policy S2 of the Plan, is ensuring there are no unacceptable adverse impacts arising from proposed minerals development for public health and wellbeing, public safety, amenity, the quality of life of nearby communities, and the environment. Minerals development can cause concern to residents and local communities associated with potential unmitigated noise, dust, fumes, vibration, illumination and debris on the highway from vehicle movements. The Plan acknowledges that when considering planning applications, the MPA must be satisfied that those potential adverse impacts have all been satisfactorily investigated and addressed. This is elaborated on in Policy S10 which sets the strategic approach of the Plan in ensuring that environmental and social effects of a proposal are understood at the planning application stage. Further, this Policy outlines that, 'appropriate mitigation measures shall be included in the proposed scheme of development to ensure that no unacceptable adverse impacts would arise. Applications shall also demonstrate that opportunities have been taken to improve and enhance the environment and amenity.' The Plan also ensures that where relevant a Health Impact Assessment (HIA) will be required to accompany any planning application. HIAs will need to address issues of nuisance and amenity, where they might correlate to health impacts, such as routeing, dust, noise and safety.

It should be further acknowledged that the Plan's development management policies, in particular Policy DM1, offer more detail to developers / landowners on what evidence based assessments should be submitted alongside a planning application. Positive implications have been highlighted for Policy DM1 in ensuring neutral effects, where social Sustainability Objectives can be positively met through protection or mitigation. This is true of nuisance and impact on local amenity both at the development level and cumulatively on issues such as noise, dust, light pollution, and vibration. The coverage of this theme, and an explanation of its relevance to minerals planning and operations, is further elaborated on within the Policy's supporting text / reasoned justification.

Nevertheless, candidate sites for potential allocation have been assessed in consideration of the proximity of residential properties. Many of the sites put forward are within 250 of existing

properties and any effects regarding nuisance and amenity will be required to be mitigated, and also considered as part of the site selection process. Uncertain effects are highlighted at this stage and it is further considered that only neutral best case scenario outcomes could be realised from the effective application of Policy in the short-medium term (associated with the lifetime of extraction activities).

7.2 Recommendations / Mitigation Measures

It should be noted that the MLP benefits from a starting point of an adopted Plan, which was subject to SA and examined in 2014. For the adopted MLP, in 2014, the SA made numerous recommendations as part of the iterative process, which were outlined in the SA at that stage and reiterated fully in an Adoption Statement that same year.

The SA of the new MLP at this stage focuses on the policy framework and does not factor in any site allocations, which can be expected to be introduced within the next iteration of the Plan. As such, no recommendations have been made within this SA, as the MLP has factored in any such requirements through previous iterations and through iterative working.

8. Next Steps

8.1 Consultation

The Regulation 18 MLP and this SA Environmental Report will be subject to consultation. There are three statutory consultees that are required to be consulted for all Sustainability Appraisal and Strategic Environmental Assessment documents. These are:

- The Environment Agency;
- Natural England; and
- Historic England.

In addition to these, consultation will seek to engage the wider community in order to encompass comprehensive public engagement. Essex County Council, as the Minerals Planning Authority, are additionally required to invite comments from focussed groups, relevant stakeholders and interested parties.

8.2 The Regulation 19 MLP

Once the Regulation 18 MLP and SA Environmental Report have been consulted upon, work will begin on formalising a Regulation 19 Plan for further consultation taking into account those comments received during the Regulation 18 consultation. The Regulation 19 Plan will be accompanied by a new iteration of the SA Environmental Report.

8.3 Future Monitoring

The significant sustainability effects of implementing a Local Plan must be monitored in order to identify unforeseen adverse effects and to be able to undertake appropriate remedial action. The Sustainability Framework contained in Appendix 1 of this Report includes suggested indicators in order to monitor each of the Sustainability Objectives, however these may not all be collected due to limited resources and difficulty in data availability or collection.

Guidance stipulates that it is not necessary to monitor everything included within the Sustainability Framework, but that monitoring should focus on significant sustainability effects, e.g. those that indicate a likely breach of international, national or local legislation, that may give rise to irreversible damage or where there is uncertainty and monitoring would enable preventative or mitigation measures to be taken.

Upon adoption Local Plans will be accompanied by an Adoption Statement which will outline those monitoring indicators most appropriate for future monitoring of the Plan in line with Regulation 16 of the Environmental Assessment of Plans and Programmes Regulations 2004.

Appendix 1: The Sustainability Framework

The Approach to Assessing the MLP

The following SA Framework forms the basis of the methods used to evaluate the effects of the Plan Review's policy amendments and any 'reasonable alternative' options where relevant.

Table 10: The Sustainability Framework

SA Objectives	Proposed guide questions to meet objective (Does the MLP…)	Potential Indicators for monitoring effect
1) To protect and enhance biodiversity through Essex and beyond	Avoid damage to sites, protected species and habitats, especially where there is a designation of international, national, regional or local importance? Maintain and improve biodiversity/geodiversity, avoiding irreversible losses? Restore full range of characteristic habitats and species to viable levels? Avoid direct or indirect impacts on internationally or nationally or locally designated or recognised sites or habitats? Conserve or enhance species diversity and avoid harm to internationally and nationally protected, scarce and rare species? Provide for positive management of existing habitats? Assist species to adapt to the anticipated effects of climate change? (i.e. through	Change in number and area of designated ecological sites. Development proposals affecting protected species outside protected areas. Achievement of Habitat Action Plan targets. Achievement of Species Action Plan targets. Development proposals affecting habitats outside protected areas. Bird survey results. Reported condition of ecological SSSIs. Number of planning approvals that generated any adverse impacts on sites of acknowledged biodiversity importance. Percentage of major developments generating overall biodiversity enhancement. Hectares of biodiversity habitat delivered through strategic site allocations.

SA Objectives	Proposed guide questions to meet objective (Does the MLP…)	Potential Indicators for monitoring effect
	connecting habitats and/or providing greenspace)? Expand the spatial extent of priority habitat within Essex? Contribute to an adverse cumulative impact of development on biodiversity? Conserve or enhance geological SSSIs? Provide opportunities for the creation of accessible greenspace where restoration is planned? Commit to minimising the number of sites where adverse impacts on the natural environment may occur?	
2) To maintain and enhance water quality and resources	Seek to sustain the highest water quality? Take into account the Water Framework Directive and proposed development impacts? Seek to prevent pollution from field run off or other sources? Likely to change the general quality assessment grades of surface and ground water quality? Avoid adverse effects on existing patterns of groundwater flow and/or surface water flow? Protect or enhance the quantity and quality of ground and surface waters?	Water quality in rivers Groundwater quality Potential effect on groundwater source protection zones Condition of water bodies (Water Framework Directive) Water use figures from Anglian Water/Essex & Suffolk Water Resource availability status for units of groundwater in Catchment abstraction Condition of historic water features (e.g. ornamental lakes, and fountains etc.) within Registered Parks and Gardens, and buried archaeology.

SA Objectives	Proposed guide questions to meet objective (Does the MLP…)	Potential Indicators for monitoring effect
	Does the Plan seek to address the potential issues with the removal of part of an aquifer and disrupting groundwater flows? Change potable and/or non-potable abstraction resources or disrupt aquifer continuity? Maintain water availability for water dependant habitats? Affect rates of abstraction/water use? Consider the potential impacts of dewatering on other tenets of sustainability such as the historic environment and landscapes?	
3) To minimise the risk of flooding	Ensure minerals developments not at risk of flooding? Ensure no increased risk of flooding elsewhere? Mitigate the potential effects of fluvial flooding and reduce overall flood risk? Mitigate the potential of surface water flooding and reduce overall flood risk? Mitigate the potential for coastal flooding and reduce overall risk? Mitigate the potential for groundwater flooding and reduce overall risk? Minimise the risks and impacts of flooding having taken into account climate change?	Flood Risk – Planning applications approved against Environment Agency advice. Properties at risk of flooding from rivers. Incidence of fluvial flooding (properties affected). Incidences of surface water flooding Incidences of coastal flooding Incidences of groundwater flooding

SA Objectives	Proposed guide questions to meet objective (Does the MLP…)	Potential Indicators for monitoring effect
4) To encourage the sustainable use of land and protection of soils, including the best and most versatile agricultural land.	Minimise risk of soil contamination? Safeguard soil and protect quality and quantity? Encourage the de-contamination and/or re-use of soils? Reduce the capacity of the soil to hold carbon? Minimise the loss of greenfield land to development? Minimise loss of the best and most versatile agricultural? Affect the amount of contaminated land? Lead to remediation of contaminated land?	Map/data showing soil quality Area (hectares) of contaminated land returned to beneficial use Number and percentage of new development completed on greenfield land.
5) To promote the minerals supply hierarchy and where mineral waste is produced, to promote the movement of minerals waste up the waste management hierarchy.	Minimise minerals use in accordance with the minerals supply hierarchy? Promote the use of recycled and secondary aggregates in accordance with the minerals supply hierarchy? Increase waste arisings within the county? Encourage prevention, re-use and recycling of waste? Enable an adequate supply of mineral products to meet the needs of the local and regional economy Help to safeguard key mineral resources & infrastructure? Allow for a steady and adequate supply of minerals to	Supply of minerals Waste recycling figures for CD&E

SA Objectives	Proposed guide questions to meet objective (Does the MLP…)	Potential Indicators for monitoring effect
	meet the needs of the society in accordance with national policy?	
6) To safeguard and where possible improve air quality.	Take into account proposed development impacts within any AQMAs and their relevant Action Plans Account for locations where air pollution levels are approaching the National Objectives thresholds Improve air quality? Affect levels of the 7 National Objective pollutants for local air quality (SO2, NO2, PM10, benzene, 1,3-butadene, CO, Pb).	Achievement of emission limit values Number of AQMAs and dwelling affected Number of days of air pollution Operational impact on air quality
7) To minimise net emissions of greenhouse gases and increase adaptability to climate change.	Increase emissions (both direct and indirect) of greenhouse gases? Encourage the use of renewable energy sources for minerals activity? Have any impact upon the county's vulnerability to the impacts of climate change?	Consumption of electricity - Domestic use per consumer and total commercial and industrial use. Consumption of energy. Use of low carbon technologies. Location to maximize tonnes per miles. Opportunities for utilizing renewable or low-carbon energy supply systems.
8) To avoid, and if this is not possible minimise impacts, both direct, and indirect (e.g. through changes in setting), on the significance of the historic environment, both	Have an adverse impact on designated and non-designated heritage assets, including Listed Buildings, Conservation Areas, Registered Parks and Gardens, Scheduled	Number of listed buildings at risk Size, condition and number of Conservation Areas Buried archaeology as listed in HER

SA Objectives	Proposed guide questions to meet objective (Does the MLP…)	Potential Indicators for monitoring effect
above and below ground	Monuments, and archaeological deposits? Cause a change to the condition of designated heritage assets, and assets identified as being Heritage at Risk? Change the condition of known or potential archaeological monuments and/or the ability to record unknown buried archaeology? Protect designated areas- nationally, regionally and locally Protect areas of high archaeological potential Cause a loss of, or harm to, the character and/or setting of historic assets? Suggest the measures conserve and enhance the local character and distinctiveness of historic townscapes and landscapes? Identify and protect the relationship between historic settlements and the wider landscape Does the Plan cause a loss of, or harm to, the character and/or setting of heritage assets (including Registered Parks and Gardens, Registered Battlefields, or non-designated heritage assets)?	Areas of significant archaeological and paleo-environmental potential Number of conservation area appraisals completed and enhancement schemes implemented Buried archaeology as listed in the HER or considered to be likely within a particular site. Minerals applications submitted and refused due to adverse impact to the Historic Environment Minerals applications submitted and allowed with conditions relating to the Historic Environment Site allocations supported or opposed by Historic England
9) To protect and enhance the quality and character of	Protect and enhance the landscape everywhere and	Changes in landscape (Landscape Character

SA Objectives	Proposed guide questions to meet objective (Does the MLP…)	Potential Indicators for monitoring effect
landscapes, including the Metropolitan Green Belt	particularly in designated areas? Improve landscape and townscape character of the county and help to minimise adverse impacts to local amenity and overall landscape character? Conserve and enhance landscape character, quality and distinctiveness, paying particular regard to AONB and other designated areas of high landscape and/or historic sensitivity or value? Contribute to an adverse cumulative impact of development on protected landscapes? Provide for the restoration of land to an appropriate after-use and landscape character? Reduce the amount of derelict, degraded and underused land? Provide opportunities for the creation of accessible greenspace where restoration is planned?	Assessment) Area of designated landscape Number of TPOs affected Number of field boundaries affected Number of planning applications refused for reasons due to poor design Amount of new development in AONB/National Park/Heritage Coast with commentary on likely impact. Access and green infrastructure: Percentage of the city's population having access to a natural greenspace within 400 metres of their home. Length of greenways constructed. Hectares of accessible open space per 1000 population.
10) To maximise opportunities for economic development, including jobs, arising from minerals activities.	Facilitate an increase in employment? Facilitate wider economic development? Promote growth in key sectors? Encourage rural diversification?	Number and percentage of businesses by industry type in key sectors. Value of minerals and waste development industry within the county Investment in innovation technologies within the minerals industry

SA Objectives	Proposed guide questions to meet objective (Does the MLP…)	Potential Indicators for monitoring effect
	Encourage innovation and competitiveness within minerals industry? Ensure no conflict with other investment opportunities?	
11) To promote improvements in the sustainable use of minerals.	Promote the use of sustainable construction techniques? Maximise the quality of primary mineral resources extracted? Maximise the quality of secondary mineral resources produced? Provide appropriate land-use planning mechanisms to avoid sterilisation of mineral resources? Encourage the use of recycled goods/aggregates? Minimise the use of virgin materials and allow for the use of local, reused or recycled materials? Change the ability to extract and distribute minerals? Take account of the contribution that substitute or secondary and recycled materials and minerals waste would make to the supply of materials, before considering extraction of primary materials?	Minerals resources within the county and extend of sterilisation Minerals resources consumption
12) To achieve restoration and the aftercare of all	Promote beneficial site restoration?	Restoration and after uses of minerals sites

SA Objectives	Proposed guide questions to meet objective (Does the MLP…)	Potential Indicators for monitoring effect
mineral sites that offer the best sustainability benefits.	Promote beneficial aftercare of sites? Ensure that restoration will be of the highest quality and ensure that worked land is restored at the earliest opportunity? Ensure a range of after-uses to offer maximum sustainable benefits?	
13) To reduce the transportation of minerals, road congestion, and promote the movement of minerals using sustainable transport.	Minimise traffic volumes? Reduce the impact of road traffic, in particular HGV trips, on local communities? Reduce the vehicle kilometres travelled for the transportation of minerals and waste? Support and encourage the use of sustainable modes of transport? Support and encourage the use of low emission vehicles for the transportation of waste and minerals?	Location to maximize tonnes per miles Location of Strategic Lorry Routes
14) To protect and where possible enhance human health and well-being.	Have an adverse impact on human health? Improve access to facilities and services including recreational facilities and opportunities? Maximise the benefits of appropriate restoration and after-use of sites for the community?	Access to recreation facilities and opportunities Restoration and after-use of sites that contributes towards recreational opportunities Percentage of residents who are happy with their neighbourhood as a place to live
15) To minimise any nuisance and impact	Increase the level of nuisance (including dust, particulate	Noise levels

SA Objectives	Proposed guide questions to meet objective (Does the MLP…)	Potential Indicators for monitoring effect
on local amenity resulting from minerals activities	emissions, noise, vibration, odour, visual impact, vermin, light, litter)? Ensure that a Statutory nuisance is not caused under the Environmental protection Act 1990 by reference to BS4142 "Method for Rating industrial noise affecting mixed residential and industrial sources"? Ensure odour levels compliance? Provide mitigation measures? Does the MLPR encourage operators to establish good environmental management practices? Does the MLPR adversely impact upon access to land for recreation?	Dust levels Complaints relating to noise, dust and odour Light pollution maps

Appendix 2: Detailed Site Assessments

Site A6: Bradwell Quarry (a)

Figure 2: Map of Site A6: Bradwell Quarry (a)

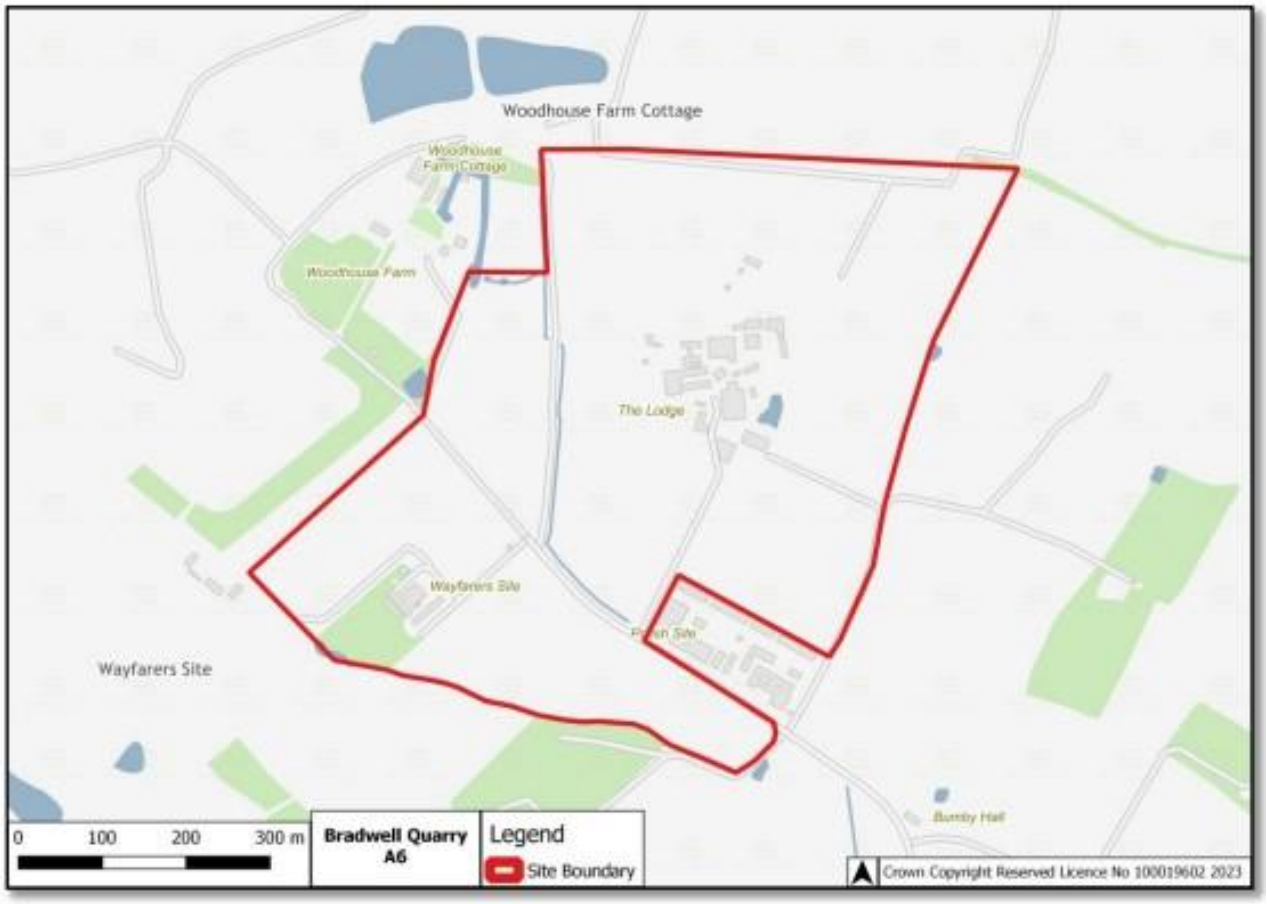


Table 11: Detailed assessment – Site A6: Bradwell Quarry (a)

Site A6: Bradwell Quarry (a)	
Effect	Description of Effects
Environmental	The site lies within a SPZ (Zone III) and a Drinking Water Protected Area (Surface Water). The site is also assessed as having a 'high' potential for surface water flood risk, as identified within the SFRA, and also contains Grade 2 quality soil (very good quality agricultural land). in regard to the historic environment, the site lies within an area of archaeological features as identified through archaeological evaluation, although the areas identified are limited in scale and are of local to

Site A6: Bradwell Quarry (a)	
Effect	Description of Effects
	regional significance. Development of this site as proposed would likely cause high levels of less than substantial harm to the significance of three listed buildings which are in close proximity to the boundary of the Site. Stoney's Wood Ancient Woodland is located on the southern boundary of the site and other Priority Habitats (Deciduous Woodland) are located partially within the south part of the site, with other woodlands on the western boundary. Various Priority Habitats (Deciduous Woodland) are also located along the River Blackwater Valley approximately 1.5km to the north of the site.
Social	At this stage in the plan-making process, it can be assumed that all proposals would lead to minimum policy standards (as established in the MLP) in regard to restoration and after-use (for example biodiversity value / net gain, or for social or economic gains). There are various residential properties within 250m of the site and although mitigation is considered possible it is likely to be difficult to achieve. A Public Right of Way(s) (PRoW) runs adjacent to, but not through, the site.
Economic	All candidate sites at this stage can be expected to provide jobs associated with the minerals industry.

Site A22: Little Bullocks Farm, (a)

Figure 3: Map of Site A22: Little Bullocks Farm, (a)

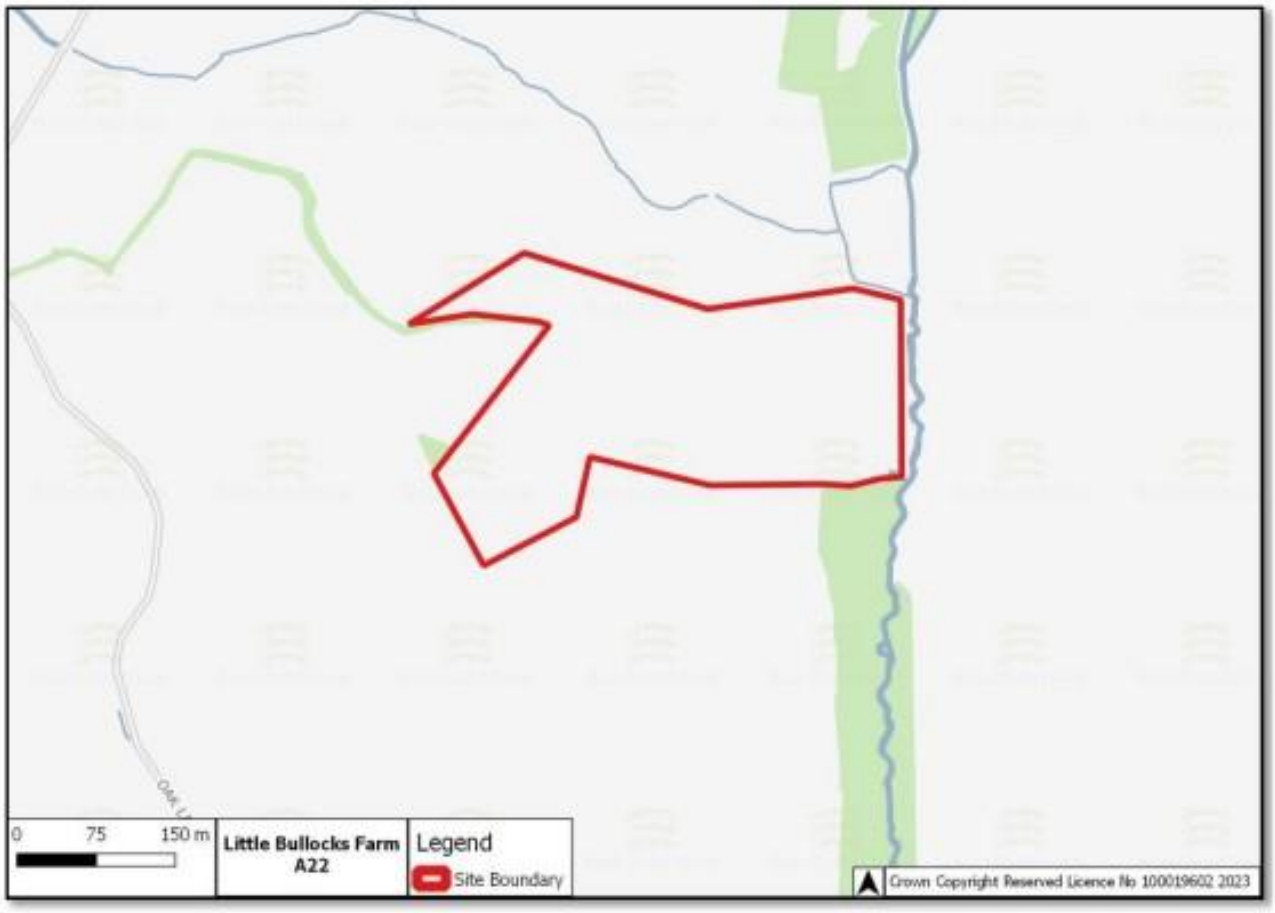


Table 12: Detailed assessment – Site A22: Little Bullocks Farm, (a)

Site A22: Little Bullocks Farm, (a)	
Effect	Description of Effects
Environmental	The site is assessed as having a 'high' potential for surface water flood risk as identified within the SFRA. The site has also been identified as having a 'high' groundwater flood risk. Both of these elements of flood risk are due to a main river being located to the east of the site. The site contains Grade 2 quality soil (very good quality agricultural land) and lies within an area known to contain multi-period archaeology from the Late Bronze Age to the medieval period situated close to the Pincey Brook. Excavations to the north show settlement evidence from the Bronze Age

Site A22: Little Bullocks Farm, (a)	
Effect	Description of Effects
	through to the post medieval period. Canfield End Pastures located on the eastern boundary is a designated Local Wildlife Site (LoWS). The proposals could have an impact upon the natural environment including priority habitats and species; this includes the direct impact to the nearby LoWS, the River Roding watercourse, mature trees, as well as potential hydrological impacts to retained habitats, and loss of and disturbance to habitats for Priority farmland species.
Social	At this stage in the plan-making process, it can be assumed that all proposals would lead to minimum policy standards (as established in the MLP) in regard to restoration and after-use (for example biodiversity value / net gain, or for social or economic gains).
Economic	All candidate sites at this stage can be expected to provide jobs associated with the minerals industry. Access is proposed via an existing access serving Crumps Farm onto the B1256 which is classified as a Secondary Distributor in Essex County Council's Development Management Route Hierarchy.

Site A23: Little Bullocks Farm, (b)

Figure 4: Map of Site A23: Little Bullocks Farm, (b)

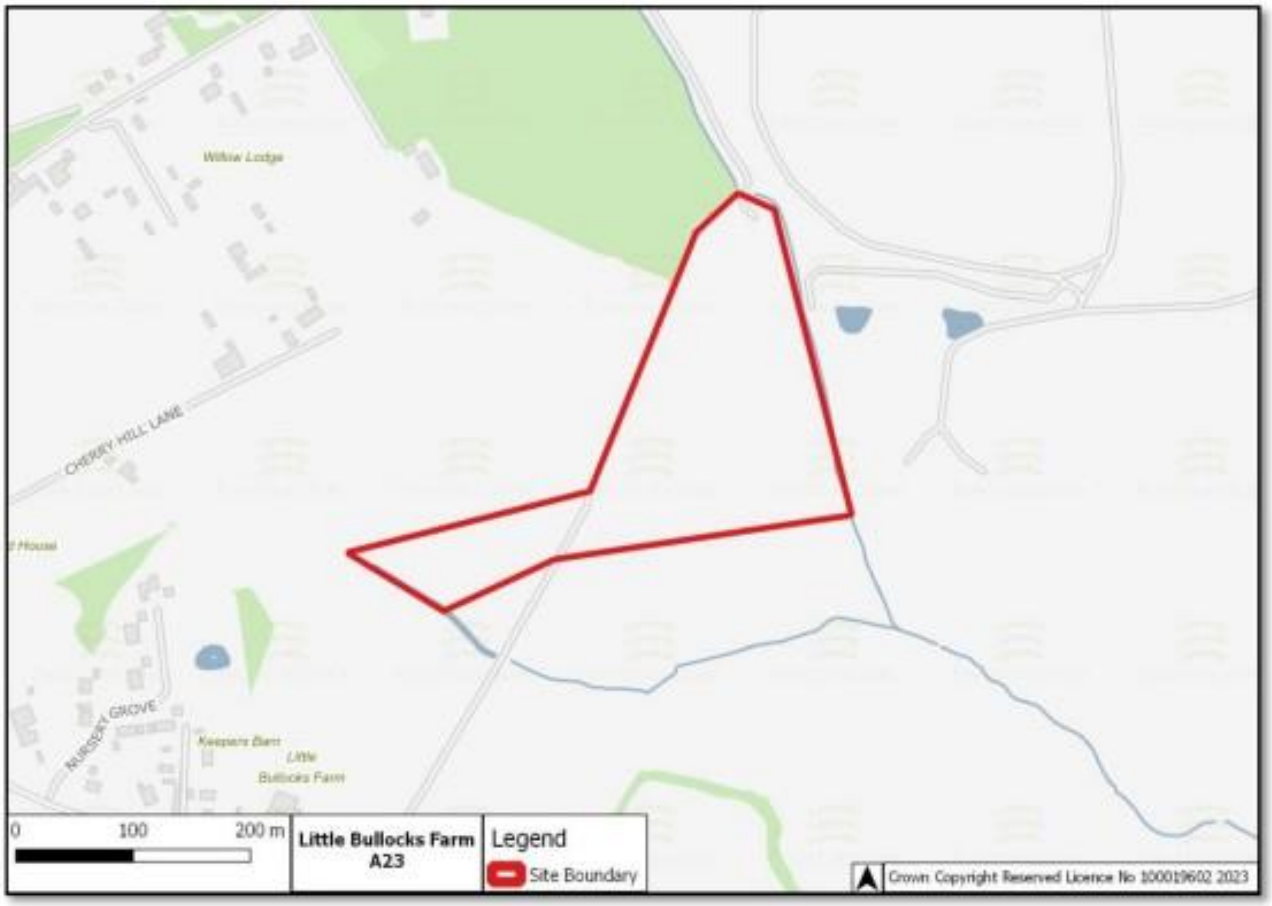


Table 13: Detailed assessment – Site A23: Little Bullocks Farm, (b)

Site A23: Little Bullocks Farm, (b)	
Effect	Description of Effects
Environmental	The site has been identified as having a 'high' groundwater flood risk. The site contains Grade 2 quality soil (very good quality agricultural land) and lies within an area known to contain multi-period archaeology from the Late Bronze Age to the medieval period situated close to the Pincey Brook. Excavations to the north show settlement evidence from the Bronze Age through to the post medieval period. Runnel's Hay located on the north-western boundary is a designated Local Wildlife Site (LoWS) and Ancient Woodland. This extends and connects with the

Site A23: Little Bullocks Farm, (b)	
Effect	Description of Effects
	Flitch Way LoWS; a significant green corridor spanning from Bishops Stortford to Braintree to the north of the site. Proposals could have an impact upon the adjacent Ancient Woodland (an irreplaceable habitat) as well as local designations and Priority habitats and species. This includes the direct and indirect impacts to the nearby LoWS, mature trees, as well as potential hydrological impacts to retained habitats.
Social	At this stage in the plan-making process, it can be assumed that all proposals would lead to minimum policy standards (as established in the MLP) in regard to restoration and after-use (for example biodiversity value / net gain, or for social or economic gains). There are various residential properties within 250m of the site and although mitigation is considered possible it is likely to be difficult to achieve. A Public Right of Way(s) (PRoW) runs through the site and will require diversion.
Economic	All candidate sites at this stage can be expected to provide jobs associated with the minerals industry. Access is proposed via an existing access serving Crumps Farm onto the B1256 which is classified as a Secondary Distributor in Essex County Council's Development Management Route Hierarchy.

Site A31: Maldon Road

Figure 5: Map of Site A31: Maldon Road

Table 14: Detailed assessment – Site A31: Maldon Road

Site A31: Maldon Road	
Effect	Description of Effects
Environmental	The HRA 'screens in' in the possibility of Likely Significant Effects on the integrity of a Habitats site, should this site be allocated, in regard to water quality and effects on Functionally Linked Land. Ecological impacts would also be anticipated upon Priority habitats due to the loss of several hedgerows, the presence of an internal water course and associated woodland, and potential impacts to adjacent woodland Priority habitat. The site is within a SPZ (Zone III) and is assessed as having a 'high' potential for surface water flood risk as identified within

Site A31: Maldon Road	
Effect	Description of Effects
	the SFRA, as well as having a 'high' groundwater flood risk. Excavation in the adjacent area has identified multi-period archaeological deposits with settlements of Bronze Age through to medieval date. There is also the potential for Palaeolithic or Pleistocene deposits within the gravels. The allocation of the site would likely result in 'less than substantial' harm at a mid-level to the significance of two Grade II listed buildings through a change within their settings. There are a number of woodland blocks adjacent to the southern boundary of the site alongside gappy but established hedgerow and hedgerow trees. The site itself is divided in several parcels by a mix of well-established hedgerow, hedgerow trees and tree belt. The site also has some attractive varying landform with a number of landscape features such as feature mature trees to the eastern boundary.
Social	At this stage in the plan-making process, it can be assumed that all proposals would lead to minimum policy standards (as established in the MLP) in regard to restoration and after-use (for example biodiversity value / net gain, or for social or economic gains). There are various residential properties within 250m of the site and although mitigation is considered possible it is likely to be difficult to achieve.
Economic	All candidate sites at this stage can be expected to provide jobs associated with the minerals industry. To export minerals by HGV via the existing access it is proposed that minerals will be delivered by conveyor to the existing quarry. This will require a crossing of the B1022. It is proposed that the existing agricultural access serving the site will be used for limited access by low loader/plant but not for export of minerals by HGV. Further assessment of the suitability of this access will be required should the site progress.

Site A47: Bradwell – Monk's Farm

Figure 6: Map of Site A47: Bradwell – Monk's Farm

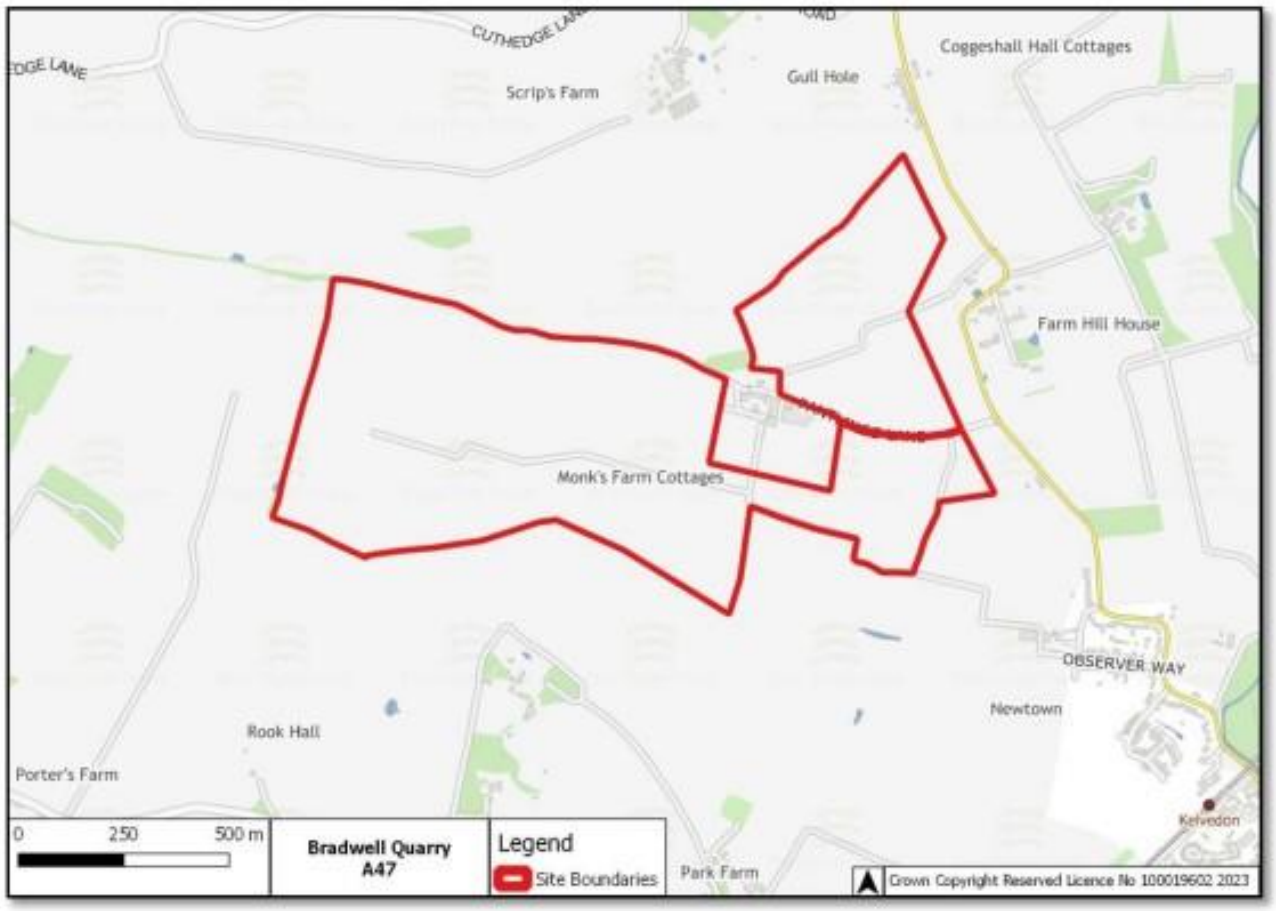


Table 15: Detailed assessment – Site A47: Bradwell – Monk's Farm

Site A47: Bradwell – Monk's Farm	
Effect	Description of Effects
Environmental	The site is within a SPZ (Zone III), is within a Drinking Water Protected Area (Surface Water), and is assessed as having a 'medium' potential for surface water flood risk and groundwater flood risk as identified within the SFRA. The site contains Grade 2 quality soil (very good quality agricultural land) and lies within an area of archaeological features; as identified through aerial photographic evidence the site contains evidence for an historic field boundary of unknown date and historic landscape features. There is also potential for evidence for

Site A47: Bradwell – Monk's Farm	
Effect	Description of Effects
	Medieval and later settlement along Pantlings Lane. The site would affect the setting of two Grade II listed designated heritage assets, with impacts being indirect due to a change to the assets' settings. There are few important landscape designations within the surrounding landscape, with the exception of Priority Habitats (Deciduous Woodland and Woodpasture/Parkland) within the wider landscape. Brockwell Meadows Local Nature Reserve (LNR) is also located approximately 2km to the south-east of the site adjacent to Kelvedon.
Social	At this stage in the plan-making process, it can be assumed that all proposals would lead to minimum policy standards (as established in the MLP) in regard to restoration and after-use (for example biodiversity value / net gain, or for social or economic gains). There are various residential properties within 250m of the site and although mitigation is considered possible it is likely to be difficult to achieve. Public Rights of Way (PRoWs) run through the site and will require diversion.
Economic	All candidate sites at this stage can be expected to provide jobs associated with the minerals industry.

Site A48: Bradwell – Grange Farm

Figure 7: Map of Site A48: Bradwell – Grange Farm

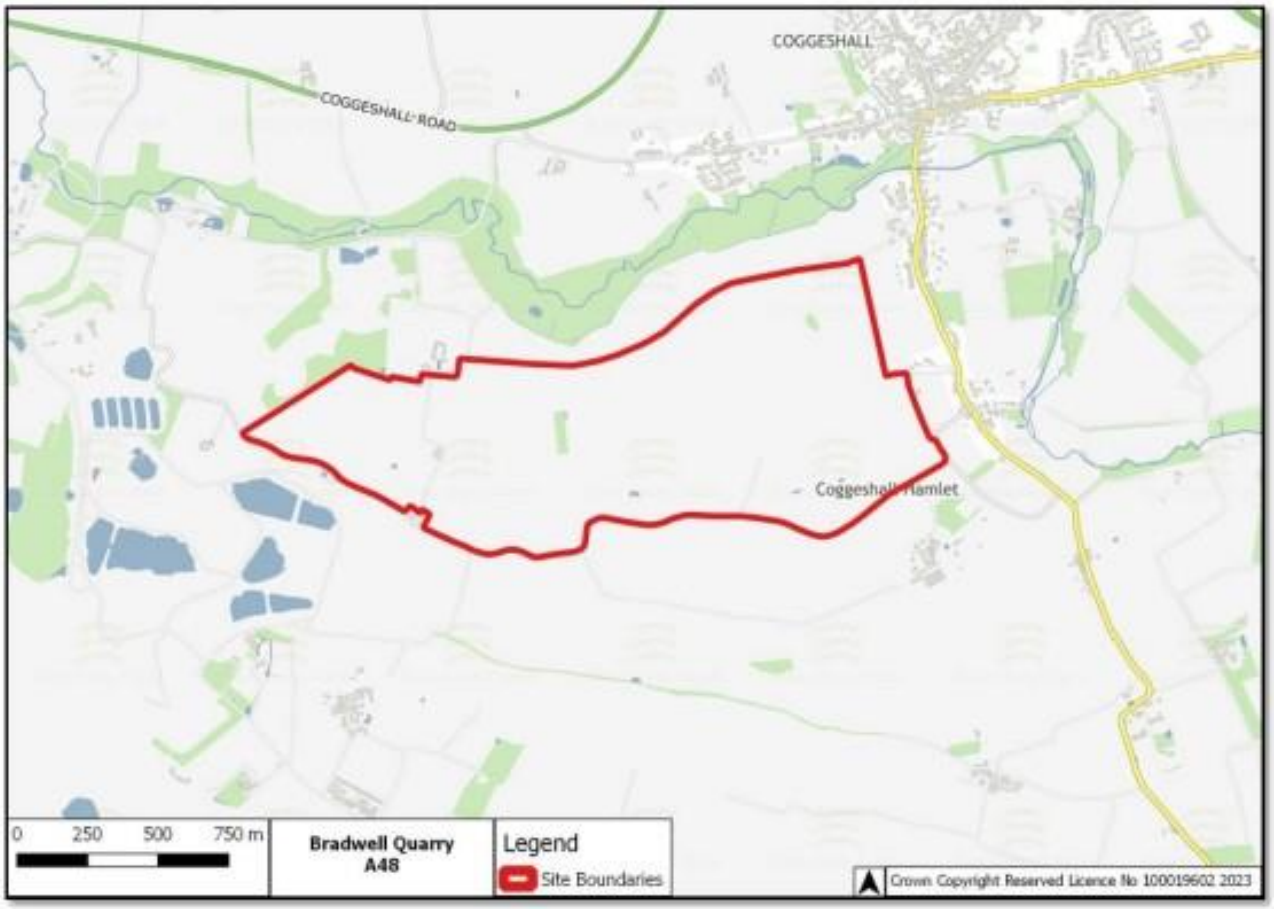


Table 16: Detailed assessment – Site A48: Bradwell – Grange Farm

Site A48: Bradwell – Grange Farm	
Effect	Description of Effects
Environmental	The site is within a SPZ (Zone III) and also within a Drinking Water Protected Area (Surface Water). The site is also assessed as having a 'medium' potential for surface water flood risk as identified within the SFRA. The site contains Grade 2 quality soil (very good quality agricultural land). A Scheduled Monument lies within 1km of the site, which lies within an area of archaeological features as identified through aerial photographic evidence and archaeological trial trenching evaluation. Trial trenching evaluation has also identified various

Site A48: Bradwell – Grange Farm	
Effect	**Description of Effects**
	concentrations of remains, indicative of archaeological sites of local to regional significance. The site would affect the setting of two Grade II listed designated heritage assets, with impacts being indirect due to a change to the assets' settings. The River Blackwater Local Wildlife Site (LoWS) is located approximately 0.15km from the Site and has strong intervisibility with northern parts of the site. A number of Priority Habitats (Deciduous Woodland) are also located along the River Blackwater to the north. There could be impacts upon irreplaceable habitats, i.e. a veteran tree situated just beyond the northern boundary, and also a direct loss of a number of hedgerows, mature trees, and watercourses.
Social	At this stage in the plan-making process, it can be assumed that all proposals would lead to minimum policy standards (as established in the MLP) in regard to restoration and after-use (for example biodiversity value / net gain, or for social or economic gains). There are various residential properties within 250m of the site and although mitigation is considered possible it is likely to be difficult to achieve. Public Rights of Way (PRoWs) run through the site and will require diversion.
Economic	All candidate sites at this stage can be expected to provide jobs associated with the minerals industry. With estimated reserves / deposits of 12.2mt, the site is identified as having significant effects regarding meeting sand and gravel needs in the plan period. Access is proposed via the existing junction with the A120 which consists of single lane dual carriageway with central reservation to accommodate right turning HGVs exiting the site and right turn facility for right turning vehicles entering the site. Despite this, to export materials by dump truck to the processing plant would require a crossing of the local road network (Cuthedge Lane).

Site A49: Colemans Farm - Hill Broad Farm Full Site

Figure 8: Map of Site A49: Colemans Farm - Hill Broad Farm Full Site

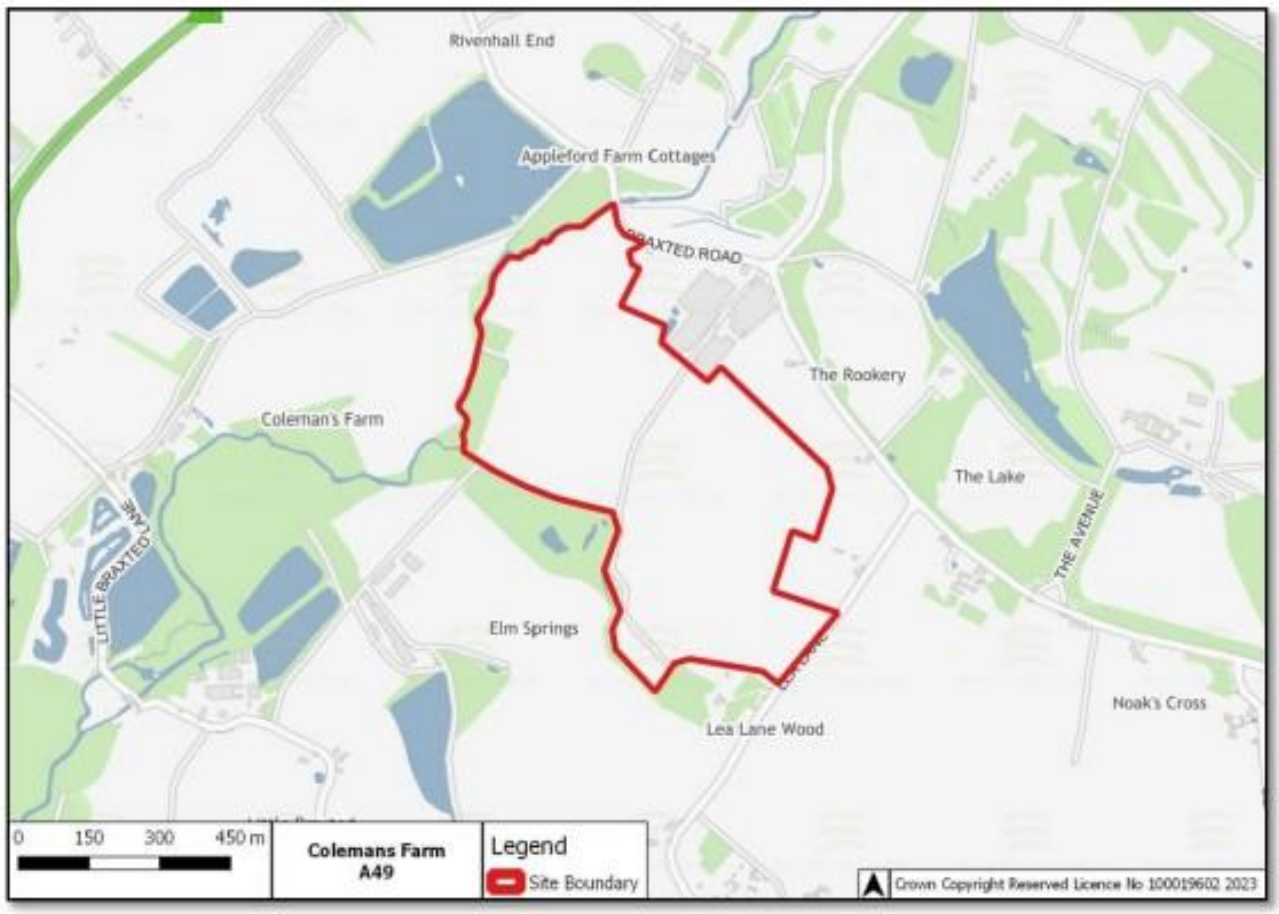


Table 17: Detailed assessment – Site A49: Colemans Farm - Hill Broad Farm Full Site

Site A49: Colemans Farm - Hill Broad Farm Full Site	
Effect	Description of Effects
Environmental	The HRA 'screens in' in the possibility of Likely Significant Effects on the integrity of a Habitats site, should this site be allocated, in regard to water quality. The proposal site is also just over 100 metres from Braxted Park Local Wildlife Site (LoWS), with possible effects to Lowland Mixed Deciduous Woodland Priority habitat, the River Blackwater, and other watercourses. The site is within a Drinking Water Protected Area (Surface Water) and is assessed as having a 'high' potential for surface water flood risk (as identified within the SFRA) as

Site A49: Colemans Farm - Hill Broad Farm Full Site	
Effect	Description of Effects
	well as a 'high' groundwater flood risk. The site is predominantly within Flood Risk Zone 1 however parts of the site within FRZ2 and FRZ3 associated with the River Blackwater. The site contains (in part) Grade 2 quality soil (very good quality agricultural land). A Scheduled Monument lies within 1km of the Site, which lies within an area of archaeological features as identified through aerial photographic evidence; in the northern area of the Site a circular enclosure is interpreted as being of prehistoric date and possibly a ritual monument, and a series of linear features may represent possibly prehistoric or later land division along the river valley. The allocation of the site would have a detrimental impact on the setting of three Grade II listed buildings. Furthermore, the change to the setting of the listed buildings would amount to a mid-level of less than substantial harm to their significance. Elm Springs Priority Habitat (Deciduous Woodland) defines the western site boundary, and Strowling & Crierswood Ancient Woodland is located 0.3km to the south of the site. The River Blackwater valley is located on the immediate boundary to the west, with strong intervisibility between the site and the river. Appropriate consideration would be required to mitigate the physical impacts on Elm Springs with a suitable buffer. Mineral extraction within this location would significantly alter the setting of the River Blackwater valley.
Social	At this stage in the plan-making process, it can be assumed that all proposals would lead to minimum policy standards (as established in the MLP) in regard to restoration and after-use (for example biodiversity value / net gain, or for social or economic gains). There are various residential properties within 250m of the site and although mitigation is considered possible it is likely to be difficult to achieve. A Public Right of Way (PRoW) runs through the site and will require diversion.
Economic	All candidate sites at this stage can be expected to provide jobs associated with the minerals industry. Access proposed via an existing access from Little Braxted Lane which is classified as a local route (other) in Essex County Council's Development Management Route Hierarchy.

Site A50: Colemans Farm - Eastern extension (Appleford Farm)

Figure 9: Map of Site A50: Colemans Farm - Eastern extension (Appleford Farm)

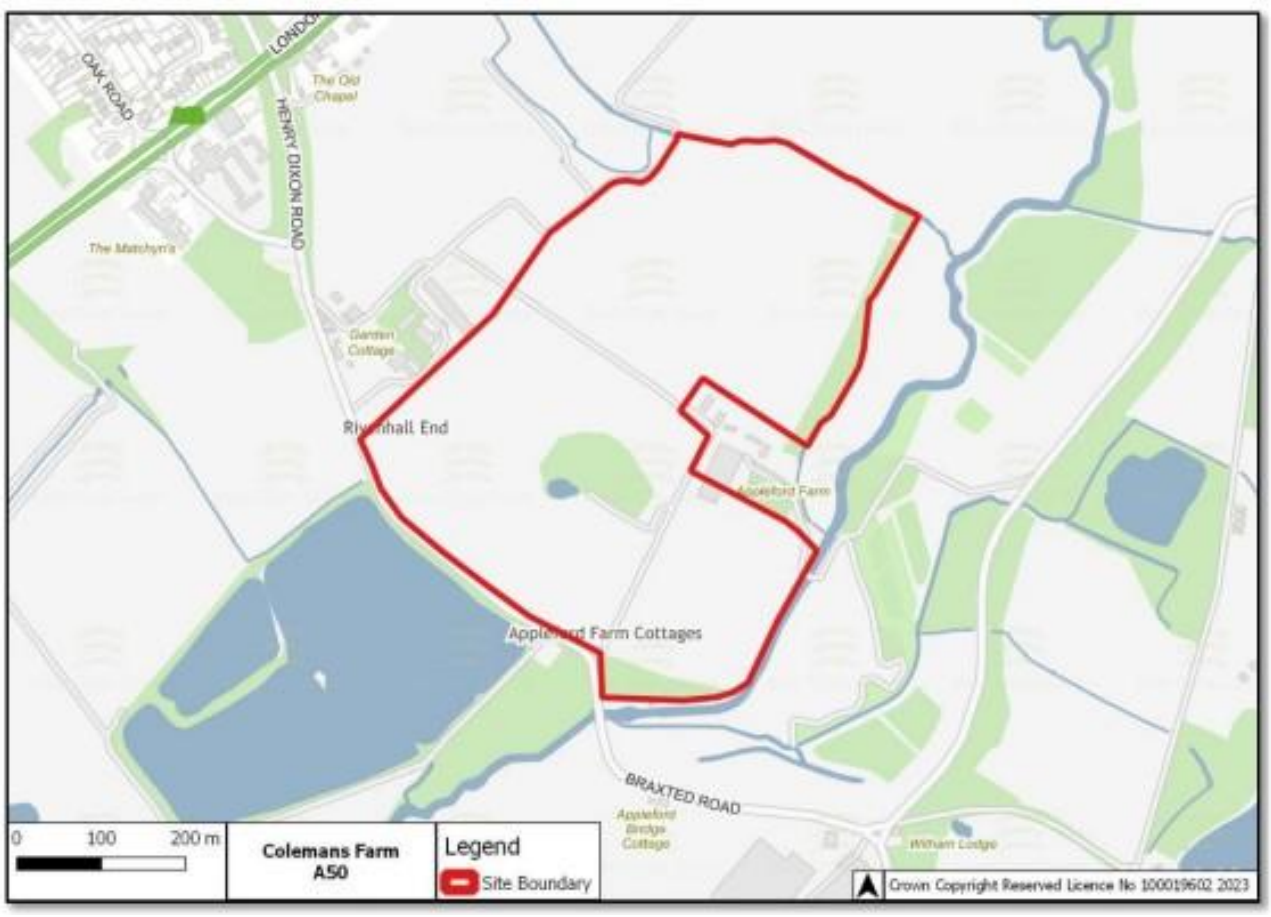


Table 18: Detailed assessment – Site A50: Colemans Farm - Eastern extension (Appleford Farm)

Site A50: Colemans Farm - Eastern extension (Appleford Farm)	
Effect	Description of Effects
Environmental	The HRA 'screens in' in the possibility of Likely Significant Effects on the integrity of a Habitats site, should this site be allocated, in regard to water quality. An area of Lowland Mixed Deciduous Woodland Priority habitat is located on the site and woodland would be lost through any development. The site is within a Drinking Water Protected Area

Site A50: Colemans Farm - Eastern extension (Appleford Farm)	
Effect	Description of Effects
	(Surface Water) and is assessed as having a 'medium' potential for surface water flood risk (as identified within the SFRA) as well as a 'high' groundwater flood risk. The site is predominantly within Flood Risk Zone 1, however 18% is within FRZ2&3 associated with the River Blackwater. The site contains (in part) Grade 2 quality soil (very good quality agricultural land). A Scheduled Monument lies within 200m of the site which also is located within an area of archaeological features as identified through aerial photographic evidence and archaeological investigation. As such, the site contains concentrations of multi-period archaeological features and has the potential to contain Palaeolithic archaeological remains and Pleistocene faunal and palaeoenvironmental remains. The site is approximately 75 metres to the north of the Grade II listed Appleford Bridge. In terms of visual impact, there would be a low level of harm to the Grade II Listed Appleford Bridge resulting from the visual impact of development as proposed, however there would be a further environmental impact on the bridge and its setting resulting from dust, noise, illumination at night and the movement of traffic and the potential use of the 250-year-old bridge by heavy goods vehicles (HGVs) travelling to and from the site. The River Blackwater valley is located close to the boundary to the east with strong intervisibility between the site and the river. A number of Priority Habitats (Deciduous Woodland) are also located close to the eastern boundary of the site, largely along the river edge.
Social	At this stage in the plan-making process, it can be assumed that all proposals would lead to minimum policy standards (as established in the MLP) in regard to restoration and after-use (for example biodiversity value / net gain, or for social or economic gains). There are various residential properties within 250m of the site and although mitigation is considered possible it is likely to be difficult to achieve.
Economic	All candidate sites at this stage can be expected to provide jobs associated with the minerals industry. Access is proposed via a modified access serving Appleford Farm onto Braxted Road which is a Secondary Distributor in Essex County Council's Development Management Route Hierarchy. From a highway viewpoint Braxted Road,Oak Road and Henry Dixon Road and associated connections to the Main/Strategic Road Network via the A12 Trunk Road are not suitable in their current form.

Site A51: Colemans Farm - North extension (Hill Broad Farm)

Figure 10: Map of Site A51: Colemans Farm - North extension (Hill Broad Farm)

Table 19: Detailed assessment – Site A51: Colemans Farm - North extension (Hill Broad Farm)

Site A51: Colemans Farm - North extension (Hill Broad Farm)	
Effect	Description of Effects
Environmental	The HRA 'screens in' in the possibility of Likely Significant Effects on the integrity of a Habitats site, should this site be allocated, in regard to water quality. An area of Lowland Mixed Deciduous Woodland Priority habitat is located within the site, to the west of the River Blackwater. The site is within a Drinking Water Protected Area (Surface Water) and is assessed as having a 'high' potential for surface water flood risk (as identified within the SFRA), as well as a 'medium' groundwater flood

Site A51: Colemans Farm - North extension (Hill Broad Farm)	
Effect	Description of Effects
	risk. The Site is predominantly within FRZ1, although 43% of the Site is within FRZ3 and FRZ2. The site contains (in part) Grade 2 quality soil (very good quality agricultural land). A Scheduled Monument lies within 1km of the Site, which lies within an area of archaeological features as identified through aerial photographic evidence; in the northern area of the site a circular enclosure is interpreted as being of prehistoric date and possibly a ritual monument. A series of linear features may also represent possibly prehistoric or later land division along the river valley. The northern tip of the site is adjacent to the Grade II Listed Appleford Bridge and there is a high degree of visibility between the site to the south and the heritage asset. There is likely to be a considerable visual impact on the agrarian character from the quarrying of the site. The allocation of the site would have a negative impact on the setting of the bridge, resulting in a mid-level of less than substantial harm. The north-east boundary of the site also abuts the curtilage boundary of the Grade II Listed Appleford Bridge Cottage; the excavation of the site would result in a mid-level of less than substantial harm, due to the visual intrusion of the quarrying works on the bridge's setting. Elm Springs Priority Habitat (Deciduous Woodland) defines the western site boundary, and Strowling & Crierswood Ancient Woodland is located 0.5km to the south of the site. The River Blackwater valley is located on the immediate boundary to the west, with strong intervisibility between the site and the river.
Social	At this stage in the plan-making process, it can be assumed that all proposals would lead to minimum policy standards (as established in the MLP) in regard to restoration and after-use (for example biodiversity value / net gain, or for social or economic gains). There are various residential properties within 250m of the site and although mitigation is considered possible it is likely to be difficult to achieve. A Public Right of Way (PRoW) runs through the site and will require diversion.
Economic	All candidate sites at this stage can be expected to provide jobs associated with the minerals industry.

Site A52: Colemans Farm - Southern Extension

Figure 11: Map of Site A52: Colemans Farm - Southern Extension

Table 20: Detailed assessment – Site A52: Colemans Farm - Southern Extension

Site A52: Colemans Farm - Southern Extension	
Effect	**Description of Effects**
Environmental	The HRA 'screens in' in the possibility of Likely Significant Effects on the integrity of a Habitats site, should this site be allocated, in regard to water quality. The site is within a Drinking Water Protected Area (Surface Water) and is assessed as having a 'high' potential for surface water flood risk (as identified within the SFRA) as well as a 'high' groundwater flood risk. The site contains (in part) Grade 2 quality soil (very good quality agricultural land). The site lies within an area of recorded multi-period archaeological activity as revealed by aerial

Site A52: Colemans Farm - Southern Extension	
Effect	Description of Effects
	photographic evidence and archaeological investigations in the surrounding fields. There are recorded alluvial deposits within the site which have high potential for preservation of waterlogged deposits and palaeoenvironmental evidence. To the southwest of the site is a group of seven listed designated heritage assets, however due to the spatial separation of these heritage assets from the site, the impacts of quarrying are likely to be minor, amounting to the lowest level of less than substantial harm. Elm Springs Priority Habitat (Deciduous Woodland) is located 0.1km to the east of the site, and Strowling & Crierswood Ancient Woodland is located 0.4km to the south-east of the Site. The River Blackwater valley defines the southern boundary and is a prominent feature within the immediate landscape.
Social	At this stage in the plan-making process, it can be assumed that all proposals would lead to minimum policy standards (as established in the MLP) in regard to restoration and after-use (for example biodiversity value / net gain, or for social or economic gains).
Economic	All candidate sites at this stage can be expected to provide jobs associated with the minerals industry.

Site A54: Whiteheads

Figure 12: Map of Site A54: Whiteheads

Table 21: Detailed assessment – Site A54: Whiteheads

Site A54: Whiteheads	
Effect	Description of Effects
Environmental	The site is assessed as having a 'medium' potential for surface water flood risk (as identified within the SFRA). The site contains Grade 2 quality soil (very good quality agricultural land) and lies within an area of recorded multi-period archaeological activity as revealed by aerial photographic evidence and archaeological investigations in the surrounding fields. There are also recorded alluvial deposits within the site which have high potential for preservation of waterlogged deposits and palaeoenvironmental evidence and the site lies within an area of

Site A54: Whiteheads	
Effect	Description of Effects
	discreet recorded multi-period archaeological activity as revealed by archaeological investigations within the site and adjacent quarry. There is furthermore a high probability for the continuation of postmedieval ditches into the site which represent historic field boundaries and Middle Iron Age and Medieval settlement activity may continue into areas of the site which have received no previous archaeological investigation. The allocation of the site would likely result in 'less than substantial' harm at a low level to the significance of two Grade II listed buildings and one registered park and garden through change within their settings. A Priority Habitat (Deciduous Woodland) is located on the southern boundary, separating the Site visually from the wider landscape. Tarecroft Ancient Woodland is also located 0.4km to the north-east of the site, although is separated by a number of other arable fields.
Social	At this stage in the plan-making process, it can be assumed that all proposals would lead to minimum policy standards (as established in the MLP) in regard to restoration and after-use (for example biodiversity value / net gain, or for social or economic gains).
Economic	All candidate sites at this stage can be expected to provide jobs associated with the minerals industry. Access is proposed via an existing access onto the B1018 which includes a ghost island right turn lane. This access has been used previously by HGVs but will require re-modelling/mitigation to bring it back up to an appropriate standard

Site A55: Sheepcotes - Southern

Figure 13: Map of Site A55: Sheepcotes - Southern

Table 22: Detailed assessment – Site A55: Sheepcotes - Southern

Site A55: Sheepcotes - Southern	
Effect	Description of Effects
Environmental	The site is assessed as having a 'medium' potential for surface water flood risk as identified within the SFRA. The site contains Grade 2 quality soil (very good quality agricultural land). The site lies within an area known to contain areas of multi-period archaeology from the Late Bronze Age to the medieval period; archaeological evaluation and excavation on the adjacent quarry to the north of the site identified a late Bronze Age/Early Iron Age cremation as well as other features and Late Iron Age/Roman features indicative of settlement activity in the area.

Site A55: Sheepcotes - Southern	
Effect	Description of Effects
	The allocation of the site would likely result in 'less than substantial' harm at a moderate level to the significance of one Grade II listed building through change within its settings (Spartigans Hall). Further to the southeast is the Grade II listed Alsteads Farmhouse and Wilderness, however, the site is well separated from these assets by Leighs Road and Spartigans Hall and the site would likely result in 'less than substantial' harm at a low level to the significance of these two assets. Sheepcotes Wood located to the north is a designated Local Wildlife Site (LoWS) and Ancient Woodland and demonstrates a moderate contribution toward the local green infrastructure and visual amenity. Ecologically, there could be impacts upon the adjacent Lowland Mixed Deciduous Woodland and Orchard Priority habitats, the loss of Priority habitat hedgerows and habitat for Priority farmland species, and also at least one significant oak tree and several adjacent ponds.
Social	At this stage in the plan-making process, it can be assumed that all proposals would lead to minimum policy standards (as established in the MLP) in regard to restoration and after-use (for example biodiversity value / net gain, or for social or economic gains). Public Rights of Way (PRoWs) run through the site and will require diversion.
Economic	All candidate sites at this stage can be expected to provide jobs associated with the minerals industry.

Site A56: Sheepcotes - Western

Figure 14: Map of Site A56: Sheepcotes - Western

Table 23: Detailed assessment – Site A56: Sheepcotes - Western

Site A56: Sheepcotes - Western	
Effect	Description of Effects
Environmental	The site contains Grade 2 quality soil (very good quality agricultural land). The site lies within an area known to contain areas of multi-period archaeology from the Late Bronze Age to the medieval period; archaeological evaluation and excavation on the adjacent quarry to the east of the site identified a late Bronze Age/Early Iron Age cremation as well as other features and Late Iron Age/Roman features indicative of settlement activity in the area. Sheepcotes Wood located immediately on the northern boundary is a designated Local Wildlife Site (LoWS) and

Site A56: Sheepcotes - Western	
Effect	Description of Effects
	Ancient Woodland, demonstrating a moderate contribution toward the local green infrastructure and visual amenity. There could be ecological impacts on the adjacent ancient woodland, which is irreplaceable habitat, and also impacts on the LoWS and Priority habitats and species.
Social	At this stage in the plan-making process, it can be assumed that all proposals would lead to minimum policy standards (as established in the MLP) in regard to restoration and after-use (for example biodiversity value / net gain, or for social or economic gains). There are various residential properties within 250m of the site and although mitigation is considered possible it is likely to be difficult to achieve.
Economic	All candidate sites at this stage can be expected to provide jobs associated with the minerals industry.

Site A57: Chalk End

Figure 15: Map of Site A57: Chalk End

Table 24: Detailed assessment – Site A57: Chalk End

Site A57: Chalk End	
Effect	Description of Effects
Environmental	The site contains Grade 2 quality soil (very good quality agricultural land). The site lies within an area known to contain areas of multi-period archaeology with extensive Roman deposits present immediately adjacent; archaeological evaluation on the adjacent quarry application to the south-west of the site has identified extensive Roman occupation. The Scheduled Roman villa at Chignall St James lies to the west of the site and a number of enclosures, potentially of prehistoric date, are recorded in the area. Two moated medieval sites are also located in

Site A57: Chalk End	
Effect	Description of Effects
	close proximity to the site. The allocation of the site would likely result in change in the wider agrarian setting of Grade II listed Newland Hall and Barn at Newland Hall. These are located within 500m of the site, and the impact on these assets is likely to be the lowest level of 'less than substantial' harm due to the increased distance and separation by the intervening natural environment. Chalk Spring is located west of the site and is a designated priority habitat. The woodland demonstrates a significant contribution toward the local green infrastructure and visual amenity.
Social	At this stage in the plan-making process, it can be assumed that all proposals would lead to minimum policy standards (as established in the MLP) in regard to restoration and after-use (for example biodiversity value / net gain, or for social or economic gains). There are residential properties within 250m of the site however mitigation is considered achievable.
Economic	All candidate sites at this stage can be expected to provide jobs associated with the minerals industry. The site is proposing to use an access approved under ESS/77/20/CHL, onto A1060. However, given the increase in HGV movements, alterations to the access arrangement are likely to be required to provide a ghost island right turn lane access from the A1060.

Site A58: Little Smiths

Figure 16: Map of Site A58: Little Smiths

Table 25: Detailed assessment – Site A58: Little Smiths

Site A58: Little Smiths	
Effect	Description of Effects
Environmental	The HRA 'screens in' in the possibility of Likely Significant Effects on the integrity of a Habitats site, should this site be allocated, in regard to water quality. The site is within a Drinking Water Protected Area (Surface Water) and is also identified as having a 'high' groundwater flood risk. The site contains Grade 2 quality soil (very good quality agricultural land). An AQMA is located under 2km south west of the site between Gay Bowers Lane and Danbury Village Green. The Essex Historic Environment Record records the presence of cropmarks within

Site A58: Little Smiths	
Effect	Description of Effects
	the site; evidence from aerial photographs indicates the presence of a potential trackway and enclosure. Thrift Wood is a Priority Habitat of Deciduous Woodland and Local Wildlife Site (LoWS) and extends along the full length of the eastern boundary of the site. This coincides with National Historic Landscape Characterisation (NHLC) defining the site as typically ancient in origin. There could be impacts upon adjacent this Ancient Woodland, which is irreplaceable habitat, and an impact upon the LoWS and Priority habitats and species. Further impacts could be forthcoming to candidate veteran trees (irreplaceable habitat), hedgerows and watercourses.
Social	At this stage in the plan-making process, it can be assumed that all proposals would lead to minimum policy standards (as established in the MLP) in regard to restoration and after-use (for example biodiversity value / net gain, or for social or economic gains). There are various residential properties within 250m of the site and although mitigation is considered possible it is likely to be difficult to achieve.
Economic	All candidate sites at this stage can be expected to provide jobs associated with the minerals industry. Access is proposed via the existing quarry access off A414 Maldon Road. The existing ghost island right turn lane is not of sufficient width to accommodate a HGV clear of the running lanes, and visibility splays from the access is limited due to overgrown vegetation

Site A59: Lowleys Farm

Figure 17: Map of Site A59: Lowleys Farm

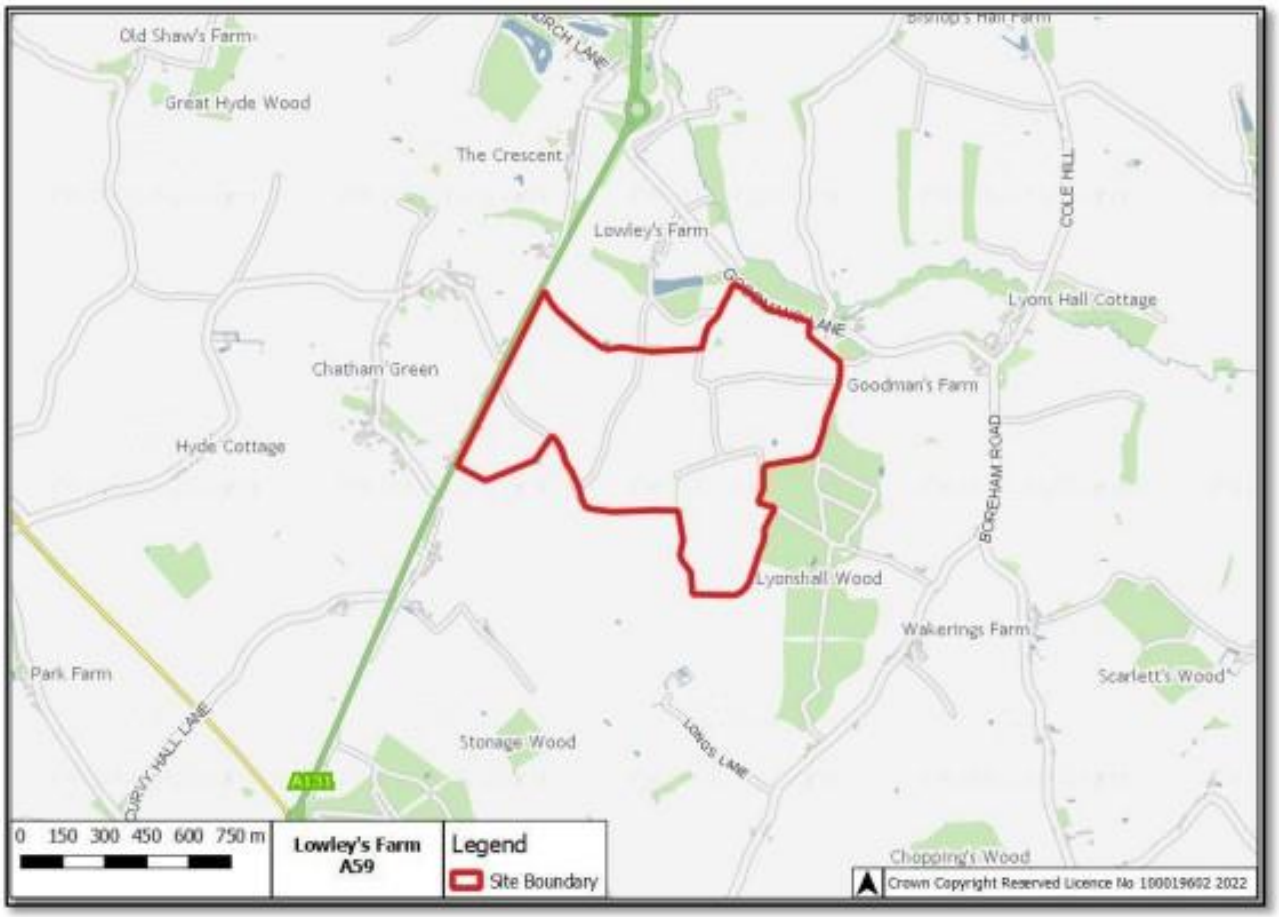


Table 26: Detailed assessment – Site A59: Lowleys Farm

Site A59: Lowleys Farm	
Effect	Description of Effects
Environmental	The site is assessed as having a 'high' potential for surface water flood risk as identified within the SFRA as well as a 'medium' groundwater flood risk. The site contains (in part) Grade 2 quality soil (very good quality agricultural land). The western edge of the site abuts the Roman Road from Chelmsford to Braintree. Archaeological evaluation has shown the presence of Late Iron Age and Roman occupation to the south of the site and the northern part of the site lies within an area

Site A59: Lowleys Farm	
Effect	Description of Effects
	known to contain areas of cropmark complexes. The allocation of the site would likely result in 'less than substantial' harm at a mid-level to the significance of two Grade II listed buildings through a profound change within their immediate settings (Goodmans Farmhouse, and Barn to the east of Goodmans Farmhouse). Lyonshall Wood located on the eastern boundary is a designated Local Wildlife Site (LoWS) and Ancient Woodland and demonstrates a significant contribution toward the local green infrastructure and visual amenity. Ecologically, the site could have impacts upon the River Ter, adjacent ancient woodland (which is irreplaceable habitat), and could have a serious impact upon the LoWS and Priority habitats and species.
Social	At this stage in the plan-making process, it can be assumed that all proposals would lead to minimum policy standards (as established in the MLP) in regard to restoration and after-use (for example biodiversity value / net gain, or for social or economic gains). There are various residential properties within 250m of the site and although mitigation is considered possible it is likely to be difficult to achieve. Public Rights of Way (PRoWs) run through the site and will require diversion.
Economic	All candidate sites at this stage can be expected to provide jobs associated with the minerals industry. With estimated reserves / deposits of 7.5mt, the site is identified as having significant effects regarding meeting sand and gravel needs in the plan period. The proposed access arrangement to the site would depend upon the timescales of the delivery of the Chelmsford northeast bypass.

Site A60a: Shellow Cross Farm - Chelmsford

Figure 18: Map of Site A60a: Shellow Cross Farm - Chelmsford

Table 27: Detailed assessment – Site A60a: Shellow Cross Farm - Chelmsford

Site A60a: Shellow Cross Farm - Chelmsford	
Effect	Description of Effects
Environmental	The site is assessed as having a 'high' potential for surface water flood risk as identified within the SFRA. The site contains Grade 2 quality soil (very good quality agricultural land). The site lies within an area known to contain areas of multi-period archaeology with extensive Roman and medieval deposits likely to be present; archaeological evaluation on the northern part of the quarry proposal has identified extensive Roman occupation. Within the southern part of the site are located two probable moated sites, likely to be of medieval date. Two scheduled moats are

Site A60a: Shellow Cross Farm - Chelmsford	
Effect	Description of Effects
	located immediately west of Skreens Lodge, and to the south west. The allocation of the site would likely result in 'less than substantial' harm at a mid-level to the significance of four Grade II listed buildings through a profound change within their immediate settings (Shellow Cross Farmhouse, Barn 100 metres east-northeast of Shellow Cross Farmhouse, Skreens Lodge, and Mountneys House). Bushey-Hays Spring Wood is located within the centre of the southern parcel and is a designated Ancient Woodland with two thirds of the area designated as a Local Wildlife Site (LoWS). The woodland demonstrates a significant contribution toward the local green infrastructure and visual amenity. Ecologically, there could be impacts upon Bushey-hays and Rowes Wood ancient woodlands, which are both irreplaceable habitats, and also impacts upon these LoWSs and other Priority habitats and species.
Social	At this stage in the plan-making process, it can be assumed that all proposals would lead to minimum policy standards (as established in the MLP) in regard to restoration and after-use (for example biodiversity value / net gain, or for social or economic gains). There are various residential properties within 250m of the site and although mitigation is considered possible it is likely to be difficult to achieve. Public Rights of Way (PRoWs) run through the site and will require diversion.
Economic	All candidate sites at this stage can be expected to provide jobs associated with the minerals industry. The site is proposing to use an access approved under planning application ESS/77/20/CHL, onto the A1060; however, given the increase in HGV movements, alterations to the access arrangement are likely to be required to provide a ghost island right turn lane access from the A1060.

Site A60b: Shellow Cross Farm - Chelmsford

Figure 19: Map of Site A60b: Shellow Cross Farm - Chelmsford

Table 28: Detailed assessment – Site A60b: Shellow Cross Farm - Chelmsford

Site A60b: Shellow Cross Farm - Chelmsford	
Effect	Description of Effects
Environmental	The site is assessed as having a 'high' potential for surface water flood risk as identified within the SFRA. The site contains Grade 2 quality soil (very good quality agricultural land). The site lies within an area known to contain areas of multi-period archaeology with extensive Roman and medieval deposits likely to be present; archaeological evaluation on the northern part of the quarry proposal has identified extensive Roman occupation. Within the southern part of the site are located two probable moated sites, likely to be of medieval date. Two scheduled moats are

Site A60b: Shellow Cross Farm - Chelmsford	
Effect	Description of Effects
	located immediately west of Skreens Lodge, and to the south west. The allocation of the site would likely result in 'less than substantial' harm at a mid-level to the significance of four Grade II listed buildings through a profound change within their immediate settings (Shellow Cross Farmhouse, Barn 100 metres east-northeast of Shellow Cross Farmhouse, Skreens Lodge, and Mountneys House). Bushey-Hays Spring is located within the centre of the southern parcel and is a designated Ancient Woodland with two thirds of the area designated as a Local Wildlife Site (LoWS). The woodland demonstrates a significant contribution toward the local green infrastructure and visual amenity and is surrounded by National Habitat Network Enhancement Zone 2 which connects a corridor of habitats. Ecologically, there could be impacts upon Bushey-hays and Rowes Wood ancient woodlands, which are both irreplaceable habitats, and also impacts upon these LoWSs and other Priority habitats and species.
Social	At this stage in the plan-making process, it can be assumed that all proposals would lead to minimum policy standards (as established in the MLP) in regard to restoration and after-use (for example biodiversity value / net gain, or for social or economic gains). There are various residential properties within 250m of the site and although mitigation is considered possible it is likely to be difficult to achieve. Public Rights of Way (PRoWs) run through the site and will require diversion.
Economic	All candidate sites at this stage can be expected to provide jobs associated with the minerals industry. The site is proposing to use an access approved under planning application ESS/77/20/CHL, onto the A1060; however, given the increase in HGV movements, alterations to the access arrangement are likely to be required to provide a ghost island right turn lane access from the A1060.

Site A61: Heckfordbridge – Site 1

Figure 20: Map of Site A61: Heckfordbridge – Site 1

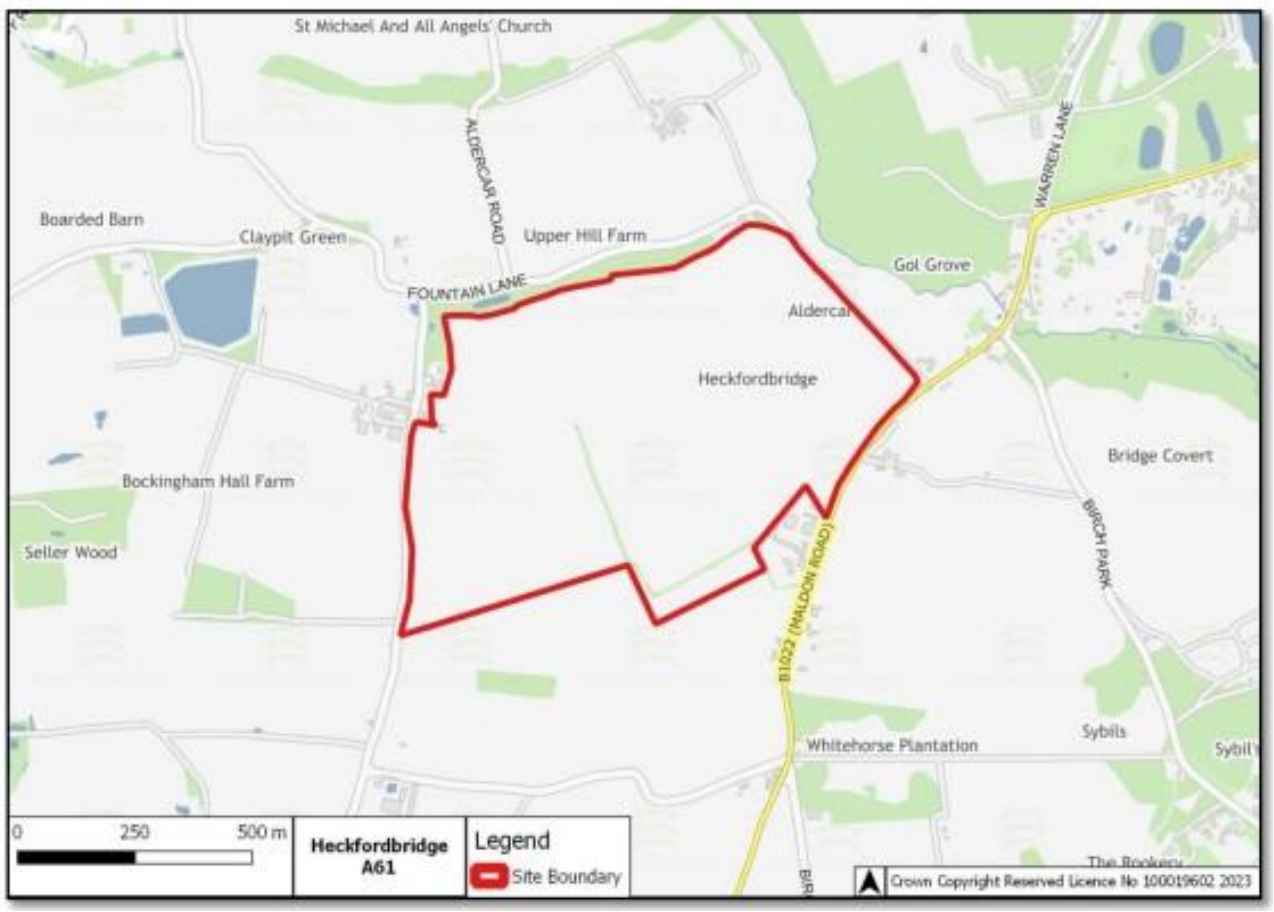


Table 29: Detailed assessment – Site A61: Heckfordbridge – Site 1

Site A61: Heckfordbridge – Site 1	
Effect	Description of Effects
Environmental	The HRA 'screens in' in the possibility of Likely Significant Effects on the integrity of a Habitats site, should this site be allocated, in regard to water quality and effects on Functionally Linked Land. The site could have impacts upon the internal hedgerows (which are Priority habitat) and also see the loss of a small number of trees. The site is within a Source Protection Zone (Zone III) and has been identified as having a 'medium' groundwater flood risk. The site contains (in part) Grade 2 quality soil (very good quality agricultural land). The site lies within an

Site A61: Heckfordbridge – Site 1	
Effect	Description of Effects
	extensive cropmark landscape; this includes at least one enclosure and a trackway with a similar spread of crop marks around the site. Metal detecting finds include items of prehistoric, early medieval, and medieval date and historic farm complexes are located just outside the north-western side of the site. The allocation of the site would likely result in 'less than substantial' harm at a mid-level to the significance of four Grade II listed buildings through a change within their settings (Walnut Tree Farmhouse, Barn To South Of Walnut Tree Farm, Bockingham Hall, and Barn To South Of Bockingham Hall). The site is within an attractive undulating landscape with landscape and historic features in view. There are feature trees and hedgerows as field boundaries with some historic value on site and attractive panoramic views of the surrounding landscape from the public footpath crossing the site, in particular long-distance view of St Peters Church to the south.
Social	At this stage in the plan-making process, it can be assumed that all proposals would lead to minimum policy standards (as established in the MLP) in regard to restoration and after-use (for example biodiversity value / net gain, or for social or economic gains). There are various residential properties within 250m of the site and although mitigation is considered possible it is likely to be difficult to achieve. Public Rights of Way (PRoWs) run through the site and will require diversion.
Economic	All candidate sites at this stage can be expected to provide jobs associated with the minerals industry. Access is proposed via an existing access serving Stanway quarry onto Warren Lane which includes a ghost island right turn lane. However, to export minerals by HGV via the existing access it is proposed that the mineral will be transported to the existing quarry by conveyor. This will need to cross the local road network (Fountains Lane).

Site A62: Heckfordbridge – Site 2

Figure 21: Map of Site A62: Heckfordbridge – Site 2

Table 30: Detailed assessment – Site A62: Heckfordbridge – Site 2

Site A62: Heckfordbridge – Site 2	
Effect	**Description of Effects**
Environmental	The HRA 'screens in' in the possibility of Likely Significant Effects on the integrity of a Habitats site, should this site be allocated, in regard to water quality and effects on Functionally Linked Land. The site could have impacts upon the internal hedgerows (which are Priority habitat) and also see the loss of a small number of trees. The site is within a Source Protection Zone (Zone III) and has been identified as having a 'medium' groundwater flood risk. The site contains (in part) Grade 2 quality soil (very good quality agricultural land). The site lies within an

Site A62: Heckfordbridge – Site 2	
Effect	**Description of Effects**
	area known to contain areas of archaeological features visible as cropmarks form the air; these include at least one enclosure and a trackway. A sequence of crop marks is visible immediately to the south of the site indicating a complex site with multiple enclosures. Metal detecting finds include items of prehistoric, early medieval, and medieval date, and historic farm complexes are located just outside the north-western side of the site. The allocation of the site would likely result in 'less than substantial' harm at a mid-level to the significance of three Grade II listed buildings through a change within their settings (Beckingham Hall, Lodge To East of Beckingham Hall, and Post Office Cottages). The site is within an attractive undulating landscape with landscape and historic features in view. There are significant oak trees and hedgerow field boundaries with some historic value on site and attractive panoramic views of the surrounding landscape from the public footpath crossing the site, in particular long-distance view of St Peters Church to the south.
Social	At this stage in the plan-making process, it can be assumed that all proposals would lead to minimum policy standards (as established in the MLP) in regard to restoration and after-use (for example biodiversity value / net gain, or for social or economic gains). There are various residential properties within 250m of the site and although mitigation is considered possible it is likely to be difficult to achieve. Public Rights of Way (PRoWs) run through the site and will require diversion.
Economic	All candidate sites at this stage can be expected to provide jobs associated with the minerals industry. With estimated reserves / deposits of 8.2mt, the site is identified as having significant effects regarding meeting sand and gravel needs in the plan period. Access is proposed via an existing access serving Stanway quarry onto Warren Lane which includes a ghost island right turn lane. However, to export minerals by HGV via the existing access it is proposed that the mineral will be transported to the existing quarry by conveyor. This will need to cross the local road network (Fountains Lane).

Site A63: Patch Park, Abridge

Figure 22: Map of Site A63: Patch Park, Abridge

Table 31: Detailed assessment – Site A63: Patch Park, Abridge

Site A63: Patch Park, Abridge	
Effect	Description of Effects
Environmental	The HRA 'screens in' in the possibility of Likely Significant Effects on the integrity of a Habitats site, should this site be allocated, in regard to air quality. The site is assessed as having a 'high' potential for surface water flood risk as identified within the SFRA as well as a 'high' groundwater flood risk. The site is predominantly within Flood Risk Zone 3 (79%) and therefore these areas are at risk from fluvial flooding. The site contains a wide range of archaeological deposits identified from aerial photography. In the far western corner two enclosures are

Site A63: Patch Park, Abridge	
Effect	Description of Effects
	recorded of potential prehistoric date. On the northern edge a series of rectilinear enclosures are recorded, potentially either settlement enclosures or a field system. In the central part of the site are a minimum of four large ring ditches, probably representative of a Bronze Age cemetery of barrows. Also in this sequence a rectangular enclosure is located which may also be funerary or potentially a settlement enclosure. The allocation of the site would likely result in 'less than substantial' harm at a low level to the significance of eleven Grade II listed buildings through change within their settings. The Landscape Character Area (LCA) is Roding Valley (C4) and the site possesses a number of distinctive characteristic features of the LCA, including the wide valley bottom, thick hedgerows with hedgerow trees and riverside trees. The combination of varied landscape features within the site increases the sensitivity of this landscape. The eastern extent of the site is designated as a Local Wildlife Site Priority Habitat Inventory as Coastal and Floodplain Grazing Marsh increasing the views to natural features. These are also likely to be affected ecologically.
Social	At this stage in the plan-making process, it can be assumed that all proposals would lead to minimum policy standards (as established in the MLP) in regard to restoration and after-use (for example biodiversity value / net gain, or for social or economic gains). There are various residential properties within 250m of the site and although mitigation is considered possible it is likely to be difficult to achieve. Public Rights of Way (PRoWs) run through the site and will require diversion.
Economic	All candidate sites at this stage can be expected to provide jobs associated with the minerals industry. The Site is proposed to be served by the creation of a new access onto the A113 Ongar Road, however no access information is provided. Appropriate access geometry and visibility splays will need to be demonstrated as achievable and mitigation required to facilitate the access and its use.

Site A64: Land East of Asheldham Quarry

Figure 23: Map of Site A64: Land East of Asheldham Quarry

Table 32: Detailed assessment – Site A64: Land East of Asheldham Quarry

Site A64: Land East of Asheldham Quarry	
Effect	Description of Effects
Environmental	The site has been identified as having a 'high' groundwater flood risk and contains Grade 2 quality soil (very good quality agricultural land). The site lies adjacent to an area known to contain extensive areas of archaeological features identified through previous archaeological excavation; to the west of the site archaeological evaluation and excavation has shown the presence of extensive Late Iron Age and Roman occupation. Excavation has also identified the presence of Saxon occupation. Both this and the earlier occupation will extend into

Site A64: Land East of Asheldham Quarry	
Effect	Description of Effects
	the new site area. The allocation of the site would likely result in 'less than substantial' harm at a mid-level to the significance of New Hall Farmhouse due to a change within its setting. Further impacts to the Asheldham Youth Church of St Lawrence are likely to be the low level of 'less than substantial' harm due to the increased distance from the site, and any impact to Asheldham Hall would likely be at the lowest end of 'less than substantial' harm due to distance and intervening development; however there are likely to be environmental impacts from the allocation of the site and a cumulative impact on their settings. The Dengie National Nature Reserve (NNR) and Site of Special Scientific Interest (SSSI) lies approximately 5km to the east of the site. A Priority Habitat of Deciduous Woodland is located 0.8km to the north-west of the Site surrounding Silver Lake which was previously excavated and restored to a recreation lake.
Social	At this stage in the plan-making process, it can be assumed that all proposals would lead to minimum policy standards (as established in the MLP) in regard to restoration and after-use (for example biodiversity value / net gain, or for social or economic gains). There are various residential properties within 250m of the site and although mitigation is considered possible it is likely to be difficult to achieve. A Public Right of Way (PRoW) runs through the site and will require diversion.
Economic	All candidate sites at this stage can be expected to provide jobs associated with the minerals industry. The Site is proposed to be served by the use of an existing access onto the B1021 Tillingham Road (a Secondary Distributor Road) and as such access would only exceptionally be permitted.

Site A65: Land South of Asheldham Quarry

Figure 24: Map of Site A65: Land South of Asheldham Quarry

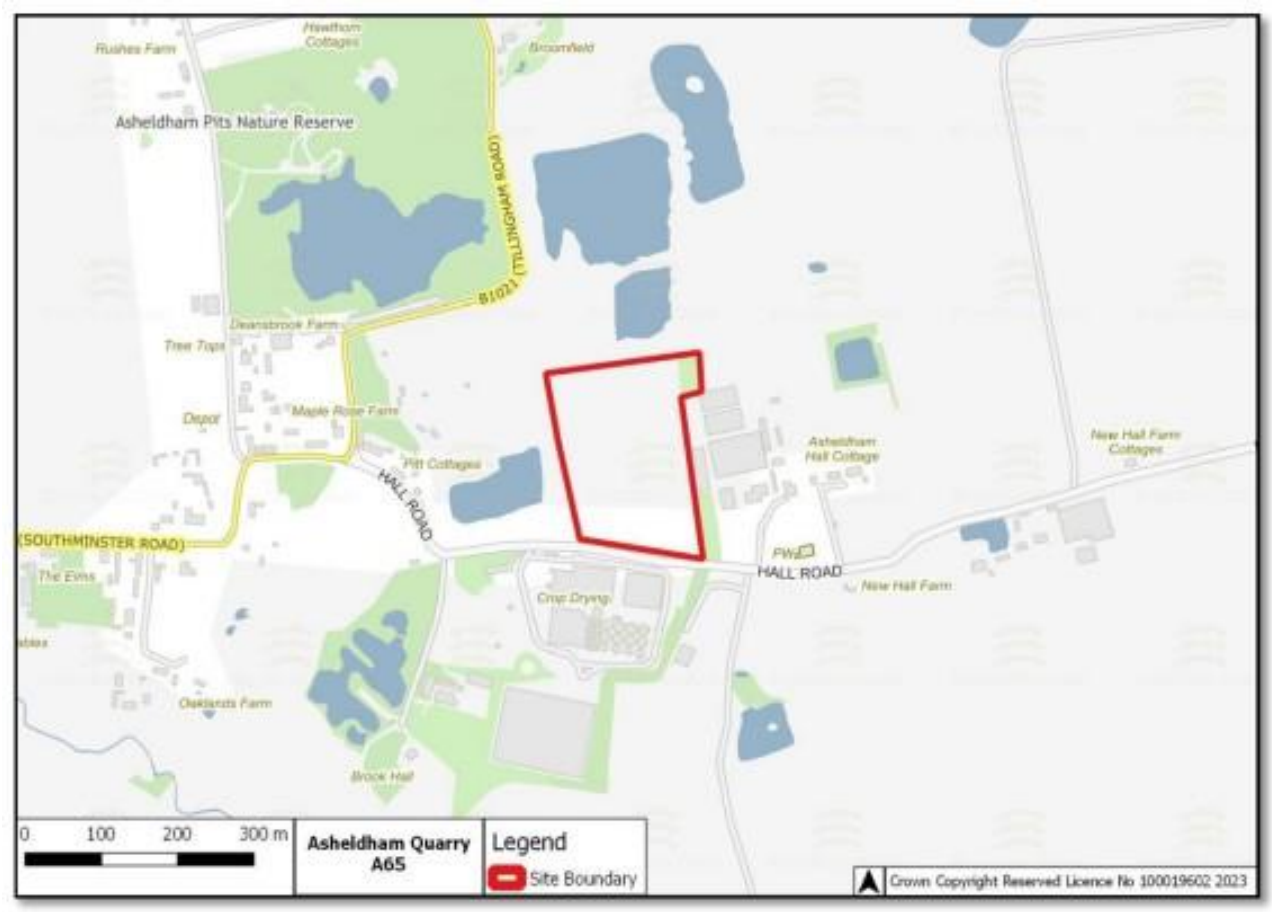


Table 33: Detailed assessment – Site A65: Land South of Asheldham Quarry

Site A65: Land South of Asheldham Quarry	
Effect	Description of Effects
Environmental	The HRA 'screens in' in the possibility of Likely Significant Effects on the integrity of a Habitats site, should this site be allocated, in regard to water quality and effects on Functionally Linked Land. The site lies adjacent to an area known to contain extensive areas of archaeological features identified through aerial photographic cropmarks and previous archaeological excavation, and within an extensive cropmark complex. The archaeological evaluation and follow-on excavation has shown the presence of extensive Late Iron Age and Roman occupation. The

Site A65: Land South of Asheldham Quarry	
Effect	Description of Effects
	allocation of the site would likely result in 'less than substantial' harm at a low-level to Asheldham Youth Church of St Lawrence due to a change within its setting. Impacts to the nearby Asheldham Hall would likely be the lowest level of 'less than substantial' harm due to the intervening development; however a cumulative impact has been identified. The Dengie National Nature Reserve (NNR) and Site of Special Scientific Interest (SSSI) lies approximately 5km to the east of the site. A Priority Habitat of Deciduous Woodland is located 0.5km to the north-west of the site surrounding Silver Lake which was previously excavated and restored to a recreation lake. The site could have impacts upon irreplaceable habitats i.e. candidate veteran trees, as well impacts upon the natural environment including Local Wildlife Sites, neighbouring waterbodies, Lowland Mixed Deciduous Woodland and Hedgerow Priority habitat and Priority species.
Social	At this stage in the plan-making process, it can be assumed that all proposals would lead to minimum policy standards (as established in the MLP) in regard to restoration and after-use (for example biodiversity value / net gain, or for social or economic gains). There are various residential properties within 250m of the site and although mitigation is considered possible it is likely to be difficult to achieve. A Public Right of Way (PRoW) runs through the site and will require diversion.
Economic	All candidate sites at this stage can be expected to provide jobs associated with the minerals industry. The Site is proposed to be served by the use of an existing access onto the B1021 Tillingham Road (a Secondary Distributor Road) and as such access would only exceptionally be permitted.

Site A66: White House Farm

Figure 25: Map of Site A66: White House Farm

Table 34: Detailed assessment – Site A66: White House Farm

Site A66: White House Farm	
Effect	**Description of Effects**
Environmental	The HRA 'screens in' in the possibility of Likely Significant Effects on the integrity of a Habitats site, should this site be allocated, in regard to water quality and effects on Functionally Linked Land. The site is within a SPZ (Zone III) and also within a Drinking Water Protected Area (Surface Water) and has been identified as having a 'medium' groundwater flood risk. The site contains Grade 2 quality soil (very good quality agricultural land). The site abuts the Scheduled Monument of Woodham Walter Hall; documentary evidence indicates a deer park was

Site A66: White House Farm	
Effect	Description of Effects
	located to the east of the Scheduled Hall which would place the site within it. A double circular enclosure is recorded in the centre of the site and from its shape and dimensions it is likely to be of prehistoric date. Furthermore, to the north of the site lies a further Scheduled Monument comprising a cropmark complex including a triple ditched enclosure, probably of Late Iron Age date. The allocation of the site would result in 'less than substantial' harm at a low-level to six Grade II listed buildings. The Wilderness is a woodland immediately abutting the site's west boundary and is a designated priority habitat. According to historical mapping, a significant area of The Wilderness and other woodland within the site has been removed and cultivated. The site could have an impact upon local designations and Priority habitats and species. This includes impacts to water quantity and quality of the watercourses on and near to the site, the adjacent LoWS, Priority Hedgerow habitat, and nearby Lowland Mixed Deciduous Woodland Priority habitat.
Social	At this stage in the plan-making process, it can be assumed that all proposals would lead to minimum policy standards (as established in the MLP) in regard to restoration and after-use (for example biodiversity value / net gain, or for social or economic gains). There are residential properties within 250m of the site however mitigation is considered achievable. Public Rights of Way (PRoWs) run through the site and will require diversion.
Economic	All candidate sites at this stage can be expected to provide jobs associated with the minerals industry. Site A66 is proposed to be served by the creation of a new access onto the A414 Maldon Road however no access information has been provided. Appropriate access geometry and visibility splays will need to be demonstrated as achievable as well as mitigation to facilitate the access and its use.

Site A67: Church Farm

Figure 26: Map of Site A67: Church Farm

Table 35: Detailed assessment – Site A67: Church Farm

Site A67: Church Farm	
Effect	Description of Effects
Environmental	The HRA 'screens in' in the possibility of Likely Significant Effects on the integrity of a Habitats site, should this site be allocated, in regard to water quality, effects on Functionally Linked Land, and direct disturbance. Ecological impacts are also highlighted in regard to the priority habitats of the River Colne and other tributary watercourses, as well as Local Wildlife Sites (LoWSs) and associated Priority species. The site is within a SPZ (Zone III) and has been identified as having a 'medium' groundwater flood risk. The site contains (in part) Grade 2

Site A67: Church Farm	
Effect	Description of Effects
	quality soil (very good quality agricultural land). A scheduled monument lies within 200m to the south of the site, which also lies within an area of archaeological features as identified through aerial photographic evidence. In the northern area of the site a circular enclosure is interpreted as being of prehistoric date and possibly a ritual monument. Further possible ring ditches are recorded within the site. The allocation of the site would likely result in 'less than substantial' harm at a mid-level to the significance of three Grade II listed Church Farmhouse buildings. Additionally, the impact to Ruins of Church of St Peter is likely to be a low-level of 'less than substantial' harm. A number of Ancient Woodlands and Local Wildlife Sites (LoWS) scatter the landscape particularly south of the site. In addition, the landscape to the south contains a significant number of designations including Environmentally Sensitive Area (ESA).
Social	At this stage in the plan-making process, it can be assumed that all proposals would lead to minimum policy standards (as established in the MLP) in regard to restoration and after-use (for example biodiversity value / net gain, or for social or economic gains). There are various residential properties within 250m of the site and although mitigation is considered possible it is likely to be difficult to achieve.
Economic	All candidate sites at this stage can be expected to provide jobs associated with the minerals industry. Access is proposed via a new access off a private road serving Alresford Quarry then onto Wivenhoe Road which is classified as a Secondary Distributor in Essex County Council's Development Management Route Hierarchy. From a highway viewpoint there are concerns regarding the ability for HGVs to connect satisfactorily with the Main Road Network.

Site A68: Crabtree Farm

Figure 27: Map of Site A68: Crabtree Farm

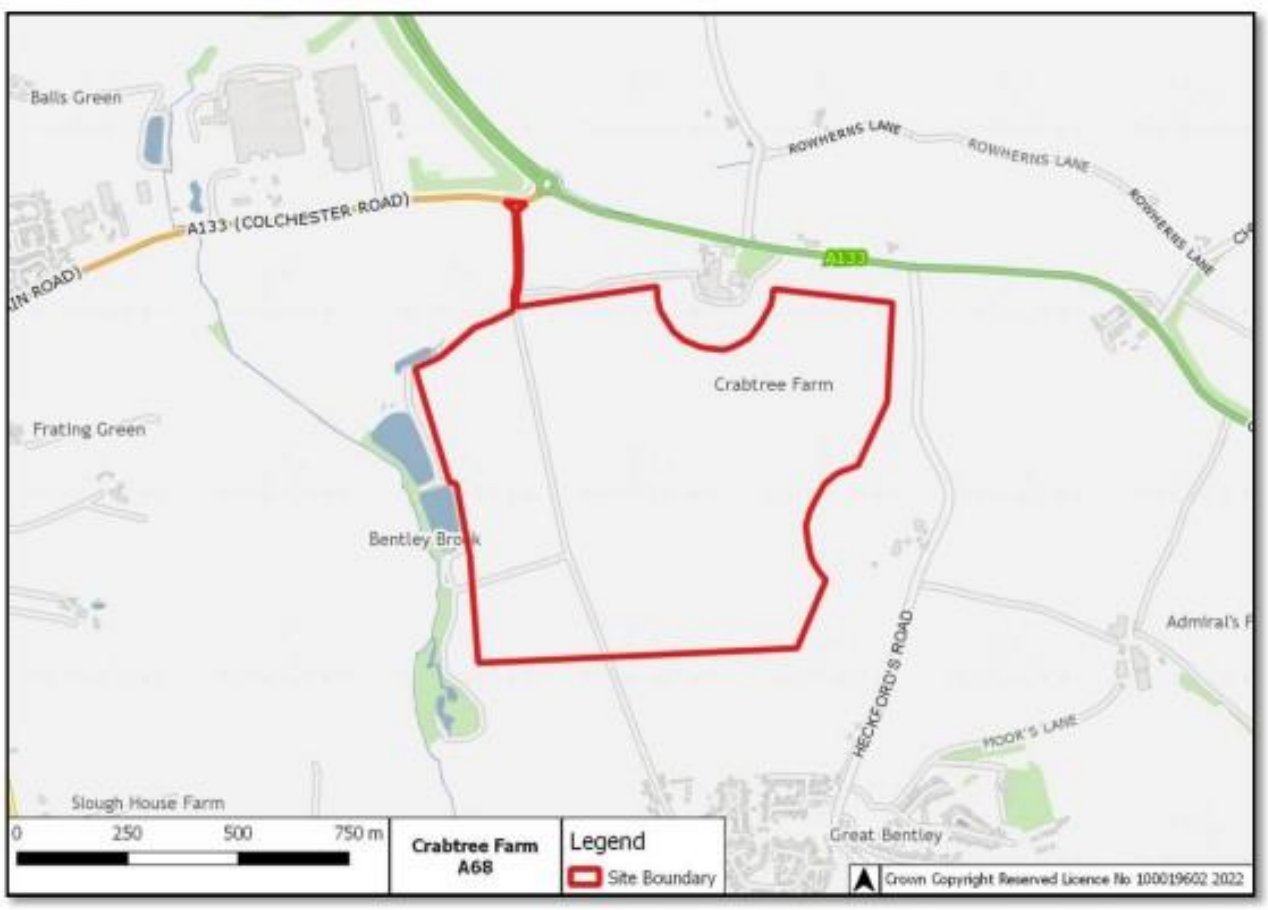


Table 36: Detailed assessment – Site A68: Crabtree Farm

Site A68: Crabtree Farm	
Effect	**Description of Effects**
Environmental	The HRA 'screens in' in the possibility of Likely Significant Effects on the integrity of a Habitats site, should this site be allocated, in regard to water quality and effects on Functionally Linked Land. The site is within a SPZ (Zone III) and contains Grade 1 quality soil (excellent quality agricultural land) and Grade 2 quality soil (very good quality agricultural land). The site lies within an area of archaeological features as identified through aerial photographic evidence. Complex probable multi-period archaeological remains are densely concentrated along the boundary

Site A68: Crabtree Farm	
Effect	Description of Effects
	with Bentley Brook including potential prehistoric ritual monuments and settlement evidence. Evidence for prehistoric, Roman, and Medieval settlement and activity to the south of the site has been confirmed through archaeological investigation. The allocation of the site would likely result in 'less than substantial' harm at a mid-level to the significance of three Grade II listed buildings through a change within their settings. Bentley Brook is located to the west contributing toward the local blue infrastructure. The brook is also surrounded by some areas of Ancient Woodland.
Social	At this stage in the plan-making process, it can be assumed that all proposals would lead to minimum policy standards (as established in the MLP) in regard to restoration and after-use (for example biodiversity value / net gain, or for social or economic gains). There are residential properties within 250m of the site however mitigation is considered achievable. A Public Right of Way (PRoW) runs through the site and will require diversion.
Economic	All candidate sites at this stage can be expected to provide jobs associated with the minerals industry. With estimated reserves / deposits of 6.1mt, the site is identified as having significant effects regarding meeting sand and gravel needs in the plan period. A new access would be required onto the A133. The proposed location of the access with existing junctions to the north-west and with the A133 roundabout to the east would make access onto the A133 difficult particularly during the peak periods, without significant mitigation measures. There is similarly poor visibility in both directions as the proposed access point is on the inside of a slight bend and the carriageway fronting the site may need to be widened to accommodate an appropriate junction arrangement.

Site A69: Frating Hall

Figure 28: Map of Site A69: Frating Hall

Table 37: Detailed assessment – Site A69: Frating Hall

Site A69: Frating Hall	
Effect	Description of Effects
Environmental	The HRA 'screens in' in the possibility of Likely Significant Effects on the integrity of a Habitats site, should this site be allocated, in regard to water quality and effects on Functionally Linked Land. The site is within a SPZ (Zone III). The site contains Grade 1 quality soil (excellent quality agricultural land) and Grade 2 quality soil (very good quality agricultural land). The site contains a wide range of archaeological deposits identified from aerial photography; in the southern area two enclosures are recorded and interpreted as being of potential prehistoric date; and

Site A69: Frating Hall	
Effect	Description of Effects
	in the western and central areas a series of rectilinear enclosures are recorded (potentially either settlement enclosures or a field system). The allocation of the site would likely result in 'less than substantial' harm at a mid-level to the significance of four Grade II listed building due to a change in their setting. A number of Ancient Woodlands and Local Wildlife Sites (LoWS) scatter the landscape west – south-west of the site. Similarly, a number of Hedgerow Priority habitats are adjacent to the boundary, and within the site, and mature trees could be affected directly and indirectly by development as proposed.
Social	At this stage in the plan-making process, it can be assumed that all proposals would lead to minimum policy standards (as established in the MLP) in regard to restoration and after-use (for example biodiversity value / net gain, or for social or economic gains). There are various residential properties within 250m of the site and although mitigation is considered possible it is likely to be difficult to achieve. Public Rights of Way (PRoWs) run through the site and will require diversion.
Economic	All candidate sites at this stage can be expected to provide jobs associated with the minerals industry. New access would be required onto the A133, at minimum a T-junction with a designated right turn lane on the A133, and the extension of street lighting which currently terminates at the terminal signs for the 40-mph speed limit for Frating village.

Site A71: Lodge Farm

Figure 29: Map of Site A71: Lodge Farm

Table 38: Detailed assessment – Site A71: Lodge Farm

Site A71: Lodge Farm	
Effect	Description of Effects
Environmental	The HRA 'screens in' in the possibility of Likely Significant Effects on the integrity of a Habitats site, should this site be allocated, in regard to water quality, effects on Functionally Linked Land, and direct disturbance. The site is within a SPZ (Zone III). The Site contains Grade 2 quality soil (very good quality agricultural land). A scheduled monument lies within 500m to the east of the site, which lies within an area of archaeological features as identified through aerial photographic evidence. In the southern area of the site an enclosure, possible

Site A71: Lodge Farm	
Effect	Description of Effects
	trackway, and pits, recorded as cropmark features, suggest archaeological activity. The site also has high potential to contain Palaeolithic archaeological remains. The allocation of the site would result in lowest-level of 'less than substantial' harm to the Grade II listed Alresford Lodge. There would likely also be a cumulative impact arising from any allocation of the site due to an existing quarry to the northeast of Alresford Lodge. A number of Ancient Woodlands and Local Wildlife Sites (LoWS) scatter the landscape particularly north of the site. In addition, the landscape to the south contains a significant number of designations including Environmentally Sensitive Area (ESA). Ecologically, the site could have impacts upon irreplaceable habitats (veteran and ancient trees) and ancient hedgerows, Acid Grassland, and Lowland Mixed Deciduous Woodlands (which are Priority habitats).
Social	At this stage in the plan-making process, it can be assumed that all proposals would lead to minimum policy standards (as established in the MLP) in regard to restoration and after-use (for example biodiversity value / net gain, or for social or economic gains). There are various residential properties within 250m of the site and although mitigation is considered possible it is likely to be difficult to achieve. Public Rights of Way (PRoWs) run through the site and will require diversion.
Economic	All candidate sites at this stage can be expected to provide jobs associated with the minerals industry. The access proposed is via a new access off a private road serving Alresford Quarry then onto Wivenhoe Road which is classified as a Secondary Distributor Road. From a highway viewpoint there are concerns regarding the ability for HGVs to connect satisfactorily with the Main Road Network.

Site A72: Martells – Southern Extension

Figure 30: Map of Site A72: Martells – Southern Extension

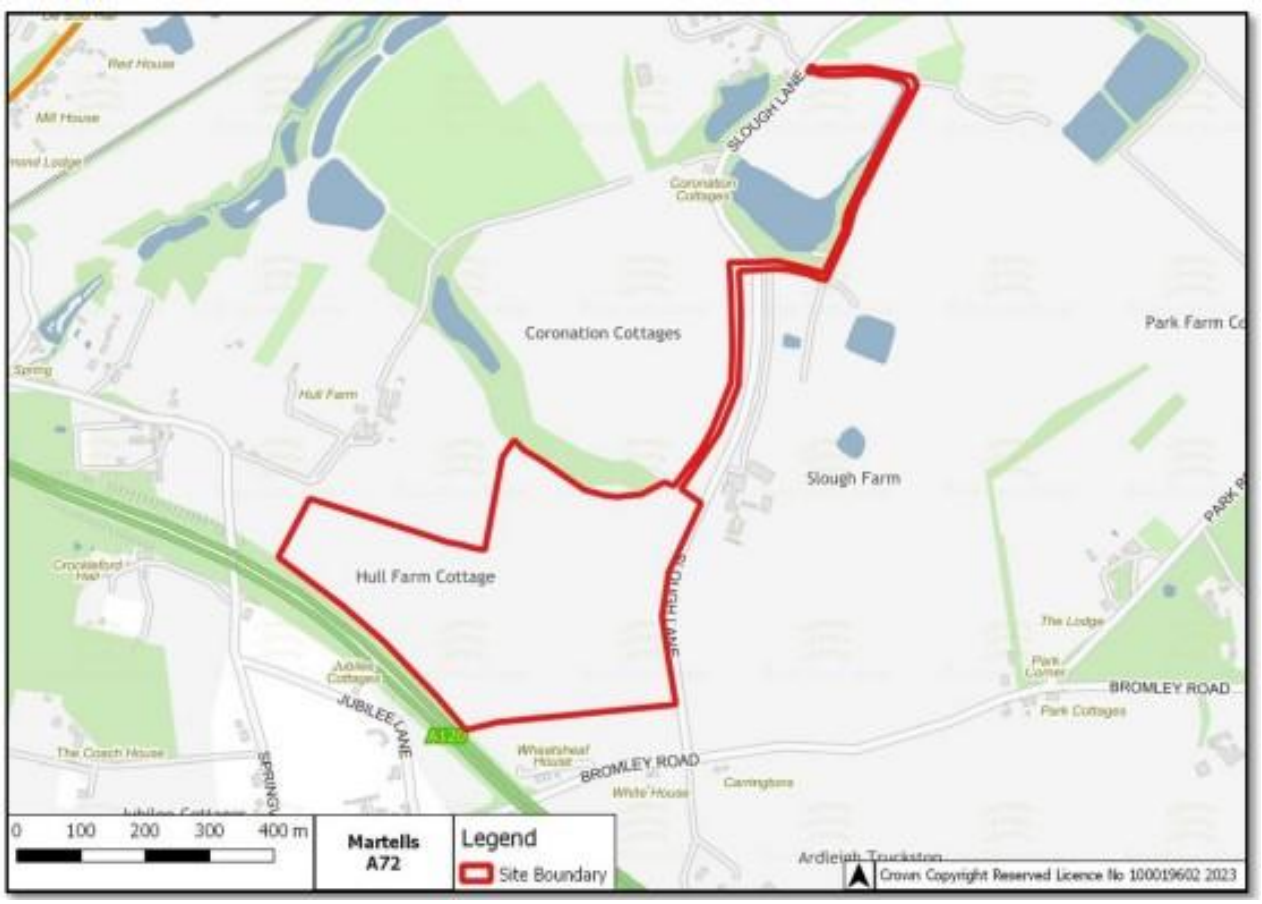


Table 39: Detailed assessment – Site A72: Martells – Southern Extension

Site A72: Martells – Southern Extension	
Effect	Description of Effects
Environmental	The HRA 'screens in' in the possibility of Likely Significant Effects on the integrity of a Habitats site, should this site be allocated, in regard to water quality. The site is within a SPZ (Zone III) and is assessed as having a 'medium' potential for surface water flood risk as identified within the SFRA. The site also contains Grade 1 quality soil (excellent quality agricultural land) and Grade 2 quality soil (very good quality agricultural land). The site lies within 1km of a Scheduled Monument and within an area of archaeological features as identified through aerial

Site A72: Martells – Southern Extension	
Effect	Description of Effects
	photographic evidence. The site contains evidence for a possible Roman road and further linear features, some of which represent historic agricultural features. The allocation of the Site in conjunction with the active Martells quarry site would likely result in 'less than substantial' harm at a mid-level to the significance of Grade II listed Hulls Farmhouse. Wall's Wood Ancient Woodland (and Priority Habitat) is located close to the west of the site on both sides of the A120 road that dissects the woodland. A Priority Habitat (Deciduous Woodland) defines the northern boundary of the site. Church Wood (Ancient Woodland) and Coastal and Floodplain Grazing Marsh (Priority Habitat) along Salary Brook are also located 1km to the south of the site. Ecologically there could be impacts upon Salary Brook and other local designations, ancient woodlands, and Priority habitats and species. This includes impacts to water quantity and quality of the adjacent watercourse and Lowland Mixed Deciduous Woodland Priority habitat.
Social	At this stage in the plan-making process, it can be assumed that all proposals would lead to minimum policy standards (as established in the MLP) in regard to restoration and after-use (for example biodiversity value / net gain, or for social or economic gains). There are various residential properties within 250m of the site and although mitigation is considered possible it is likely to be difficult to achieve.
Economic	All candidate sites at this stage can be expected to provide jobs associated with the minerals industry. Access is proposed via an existing access serving Martells Quarry onto Slough Lane which is classified as a local road in Essex County Council's Development Management Route Hierarchy.

Site A73: Martells – Western Extension

Figure 31: Map of Site A73: Martells – Western Extension

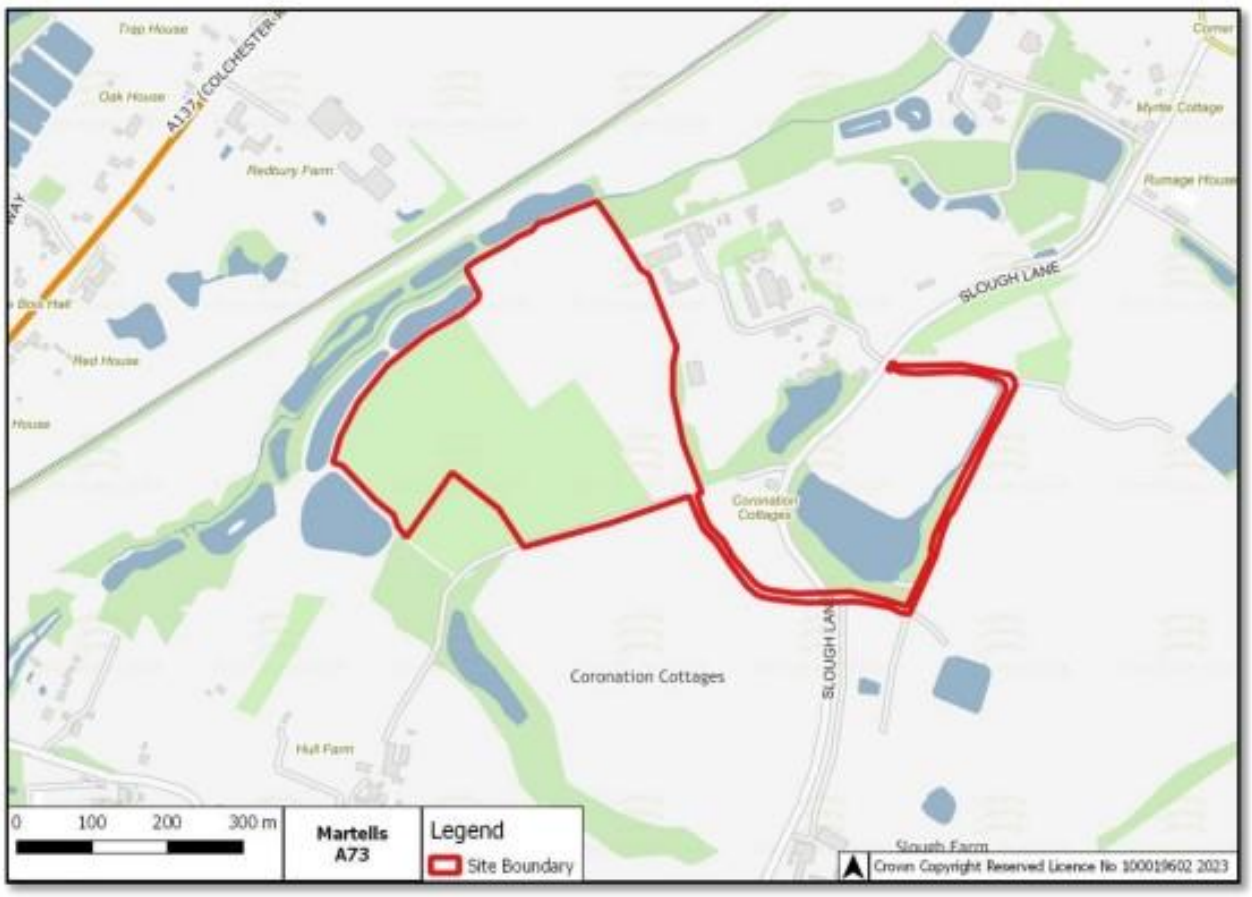


Table 40: Detailed assessment – Site A73: Martells – Western Extension

Site A73: Martells – Western Extension	
Effect	Description of Effects
Environmental	The HRA 'screens in' in the possibility of Likely Significant Effects on the integrity of a Habitats site, should this site be allocated, in regard to water quality. The site is within a SPZ (Zone III) and has been identified as having a 'medium' groundwater flood risk. The site contains (in part) Grade 2 quality soil (very good quality agricultural land). The site lies within 700m of a Scheduled Monument, and within an area of multi-period archaeological features as identified through aerial photographic evidence and archaeological investigation. The allocation of the site in

Site A73: Martells – Western Extension	
Effect	Description of Effects
	conjunction with the active Martells quarry site would likely result in 'less than substantial' harm at a mid-level to the significance of Grade II listed Hulls Farmhouse. Wall's Wood Ancient Woodland (and Priority Habitat) is located 0.5km to the southwest of the site on both sides of the A120 road that dissects the woodland. A Priority Habitat (Deciduous Woodland) also defines parts of the Site's boundary, adjacent to Salary Brook. Church Wood (Ancient Woodland) and Coastal and Floodplain Grazing Marsh (Priority Habitat) along Salary Brook are also located 1.5km to the south of the site. Development could have impacts upon irreplaceable habitats, i.e. ancient and veteran trees and candidate veteran trees, and also Salary Brook itself including priority and species.
Social	At this stage in the plan-making process, it can be assumed that all proposals would lead to minimum policy standards (as established in the MLP) in regard to restoration and after-use (for example biodiversity value / net gain, or for social or economic gains). There are various residential properties within 250m of the site and although mitigation is considered possible it is likely to be difficult to achieve.
Economic	All candidate sites at this stage can be expected to provide jobs associated with the minerals industry. Access is proposed via an existing access serving Martells Quarry onto Slough Lane which is classified as a local road in Essex County Council's Development Management Route Hierarchy.

Site A74: Thorrington Hall Farm

Figure 32: Map of Site A74: Thorrington Hall Farm

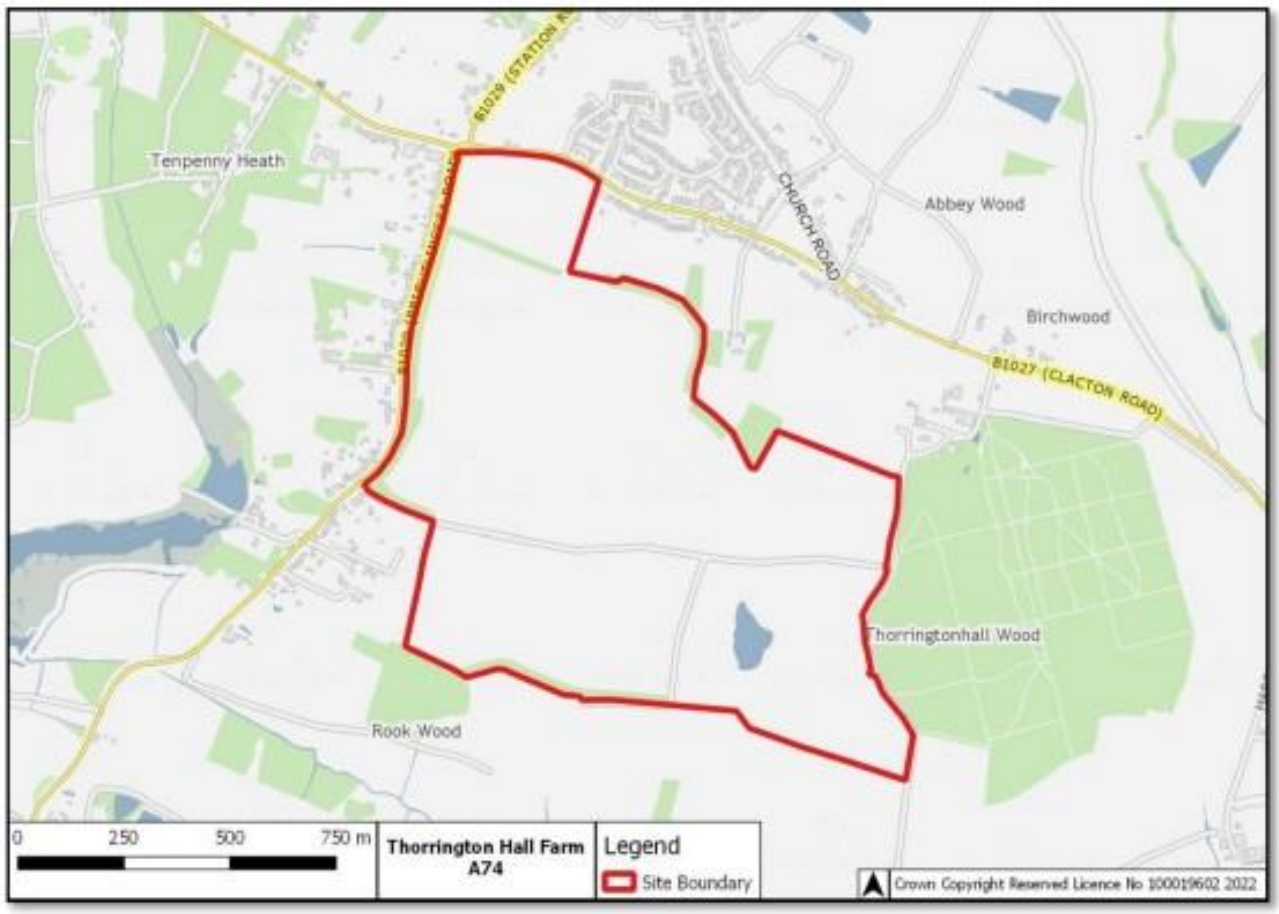


Table 41: Detailed assessment – Site A74: Thorrington Hall Farm

Site A74: Thorrington Hall Farm	
Effect	Description of Effects
Environmental	The HRA 'screens in' in the possibility of Likely Significant Effects on the integrity of a Habitats site, should this site be allocated, in regard to water quality, effects on Functionally Linked Land, and direct disturbance. The site is assessed as having a 'medium' potential for surface water flood risk as identified within the SFRA and also a 'medium' groundwater flood risk. The site contains (in part) Grade 2 quality soil (very good quality agricultural land). The site contains a wide range of archaeological deposits identified from aerial photography; on

Site A74: Thorrington Hall Farm	
Effect	Description of Effects
	the western area a sequence of small enclosures and two possible ploughed flat burial mounds are present along with former field boundaries. On the eastern area a series of linear features located at right angles to a probable trackway are recorded. The allocation of the site would likely result in 'less than substantial' harm at a mid-level to the significance of the Grade II* listed Church of St Mary Magdalene and neighbouring Grade II listed Thorrington Hall. Thorrington Hall Ancient Woodland is located on the eastern boundary, abutting the site. Development as proposed could have impacts upon irreplaceable habitats (veteran and ancient trees) and ancient woodland. Hedgerows and Lowland Mixed Deciduous Woodlands, which are Priority habitats, could also be affected directly and indirectly by the proposals.
Social	At this stage in the plan-making process, it can be assumed that all proposals would lead to minimum policy standards (as established in the MLP) in regard to restoration and after-use (for example biodiversity value / net gain, or for social or economic gains). There are various residential properties within 250m of the site and although mitigation is considered possible it is likely to be difficult to achieve. Public Rights of Way (PRoWs) run through the site and will require diversion.
Economic	All candidate sites at this stage can be expected to provide jobs associated with the minerals industry. Access is proposed via a new access serving the proposed site onto the B1027 which is classified as a Main Distributor in Essex County Council's Development Management Route Hierarchy. The implementation of a 7.5 tonne weight restriction on Alresford viaduct on the B1027 north-west of Wivenhoe Road, Alresford, and the implementation of a diversion route to avoid the weak structure mean that all HGV movements from the site would be directed eastwards on the B1027 to St Osyth and Clacton on Sea and then northwards onto the A133. There are therefore concerns over HGV traffic generation/routeing from the site, in particular for Thorrington village.

Site A75: Land at Orford

Figure 33: Map of Site A75: Land at Orford

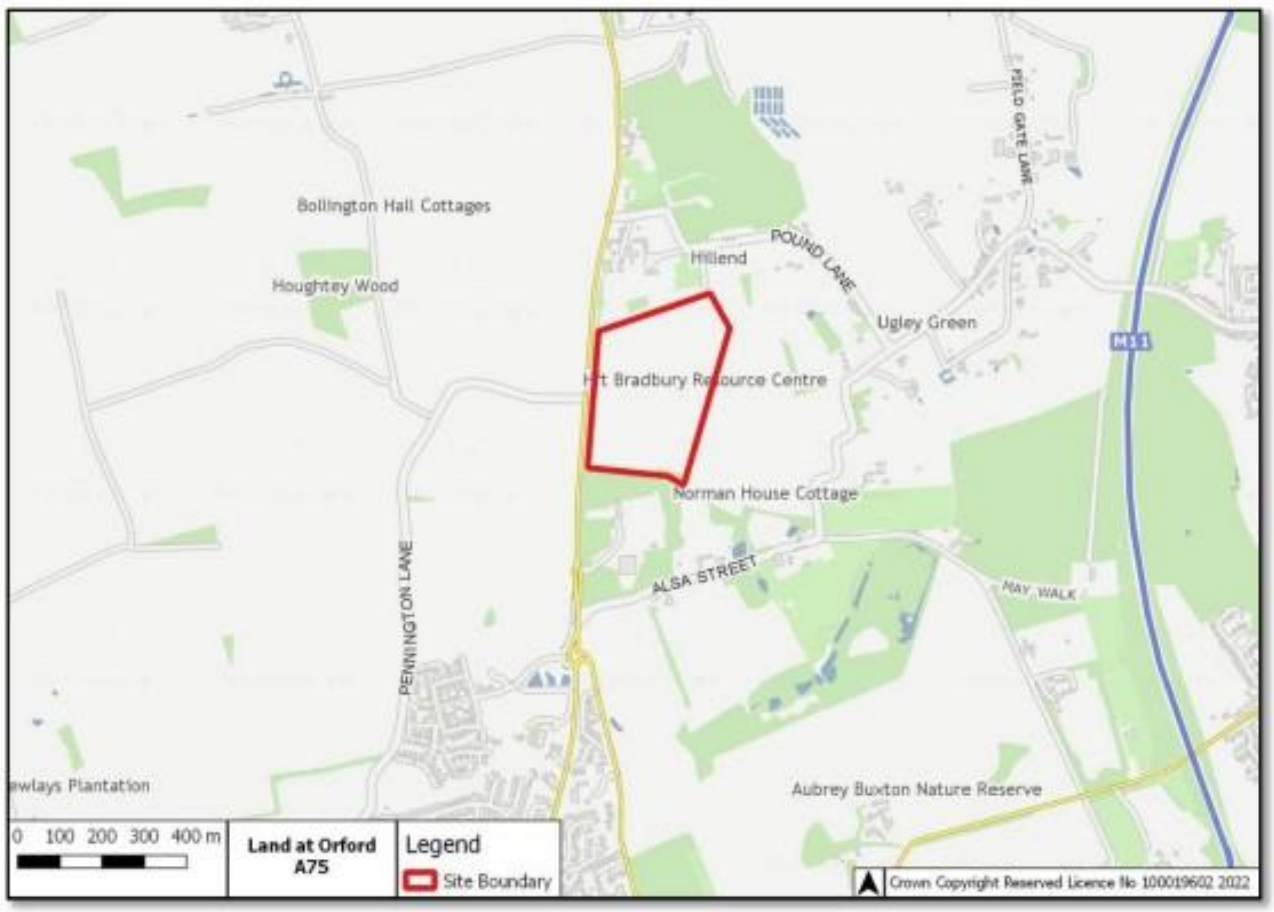


Table 42: Detailed assessment – Site A75: Land at Orford

Site A75: Land at Orford	
Effect	Description of Effects
Environmental	The site is within a SPZ (Zone III) and is assessed as having a 'medium' potential for surface water flood risk as identified within the SFRA. The site contains (in part) Grade 2 quality soil (very good quality agricultural land). Cartographic evidence shows the site lies to the immediate south of the historic complex at Orsett House, whose grounds historically extended into this area. The allocation of the site would likely result in 'less than substantial' harm at a mid-level to the significance of one Grade II* listed building and one Grade II listed building through a

Site A75: Land at Orford	
Effect	Description of Effects
	change within their settings at Orford House and Orford House Cottage and Garage Block 15 Metres to East of Orford House. Any development of the site would likely also result in 'less than substantial' harm at the low end of the spectrum to two further Grade II listed buildings. There are no landscape designations within the site however, abutting site in the south-west corner, is a Local Wildlife Site (LoWS) also designated as a Priority Habitat (Deciduous Woodland). Ecologically, the site could have impacts upon Priority habitat, particularly if the internal Hedgerows, mature trees and watercourse were to be removed. Development as proposed could also have an impact upon irreplaceable habitats (ancient woodlands), local designations (the LoWS), and the river itself.
Social	At this stage in the plan-making process, it can be assumed that all proposals would lead to minimum policy standards (as established in the MLP) in regard to restoration and after-use (for example biodiversity value / net gain, or for social or economic gains). There are residential properties within 250m of the site however mitigation is considered achievable. Public Rights of Way (PRoWs) run through the site and will require diversion.
Economic	All candidate sites at this stage can be expected to provide jobs associated with the minerals industry. Access is proposed onto the B1383 which is classified as a Main Distributor in Essex County Council's Development Management Route Hierarchy, however there is no access information provided other than a reference to improvements to existing agricultural access with provision of visibility splays. This would not be sufficient for regular HGV access from the B1383; appropriate access geometry and visibility splays will need to be demonstrated as achievable, and mitigation required to facilitate the access and its use.

Site A76: Elsenham

Figure 34: Map of Site A76: Elsenham

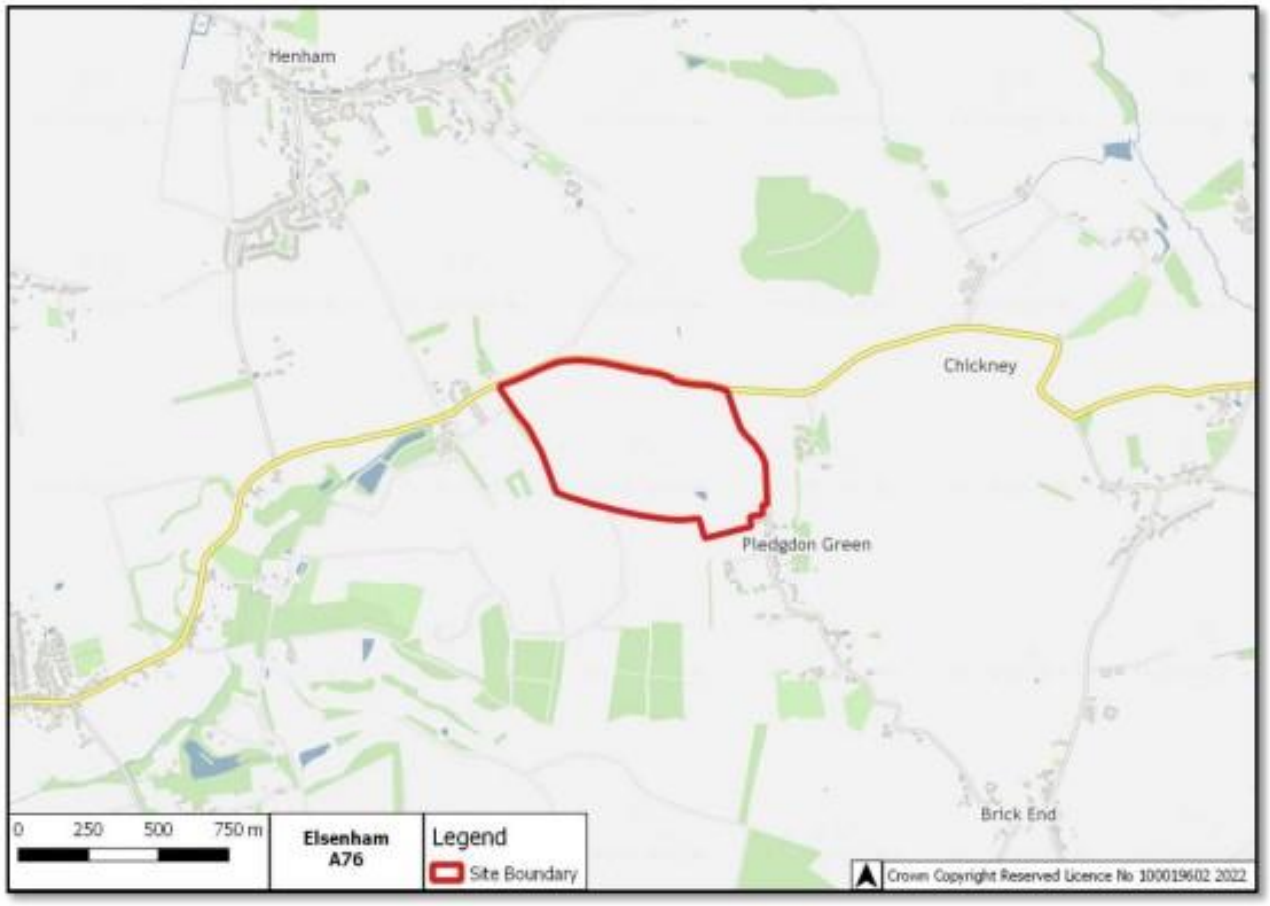


Table 43: Detailed assessment – Site A76: Elsenham

Site A76: Elsenham	
Effect	Description of Effects
Environmental	The majority of the site is within a SPZ (Zone III) and is assessed as having a 'medium' potential for surface water flood risk as identified within the SFRA. The site contains Grade 2 quality soil (very good quality agricultural land). The site lies within an area known to contain extensive areas of multi-period archaeology from the Late Bronze Age to the medieval period. Furthermore, evidence indicates the potential for Roman and medieval settlement surviving with the site. The allocation of the site would likely result in 'less than substantial' harm at a mid-level to

Site A76: Elsenham	
Effect	Description of Effects
	the significance of four Grade II listed buildings through a change within their settings (Pledgon Hall, Barn to South of Plegdon Hall On West Side, Barn to South East of Plegdon Hall On East Side of Yard, and Pledgdon Farmhouse). The allocation of the site would also likely result in 'less than substantial' harm at the low end of the spectrum to one Grade II listed building (Palegate Farmshouse). Elsenham Woods - Site of Special Scientific Interest (SSSI) lies less than 0.5km to the south of the site. Ecologically, there could be an impact upon national designations (i.e. Elsenham Woods SSSI), irreplaceable habitats (ancient woodlands), local designations (the LoWS), Priority habitats and species, and also Stansted Brook.
Social	At this stage in the plan-making process, it can be assumed that all proposals would lead to minimum policy standards (as established in the MLP) in regard to restoration and after-use (for example biodiversity value / net gain, or for social or economic gains). There are various residential properties within 250m of the site and although mitigation is considered possible it is likely to be difficult to achieve. A Public Right of Way (PRoW) runs through the site and will require diversion.
Economic	All candidate sites at this stage can be expected to provide jobs associated with the minerals industry. Access is proposed onto Hall Road/Parsonage Road which is classified as a Secondary Distributor in Essex County Council's Development Management Route Hierarchy. HGVs cannot currently take access via Stansted Airport, thus extensive use of the Secondary Distributor network would be required to access the A120/M11 passing through Takeley local junctions.

Site A77: Westward Extension to Highwood Quarry

Figure 35: Map of Site A77: Westward Extension to Highwood Quarry

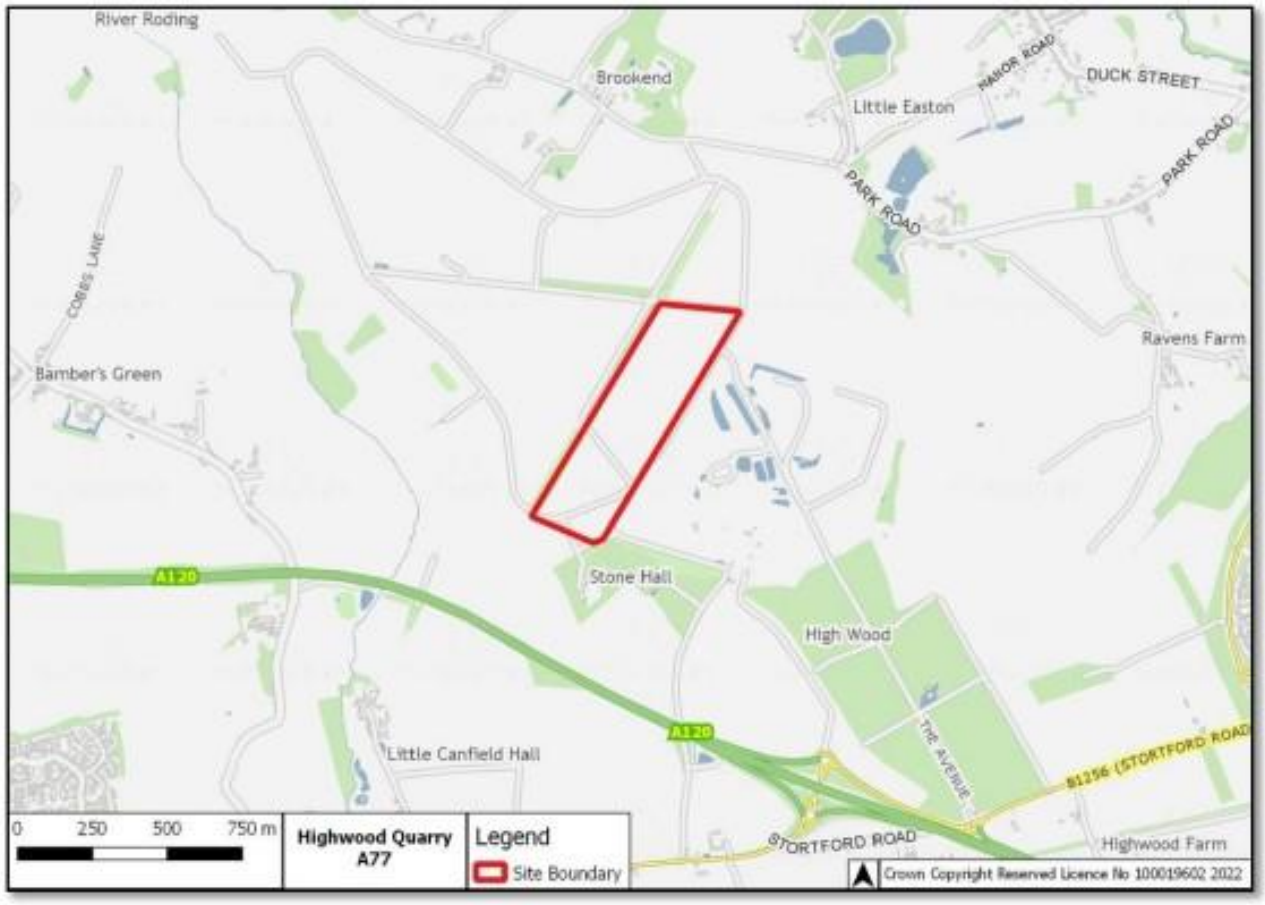


Table 44: Detailed assessment – Site A77: Westward Extension to Highwood Quarry

Site A77: Westward Extension to Highwood Quarry	
Effect	Description of Effects
Environmental	The majority of the site is within a SPZ (Zone III). The site is assessed as having a 'high' potential for surface water flood risk as identified within the SFRA and also a 'medium' groundwater flood risk. The site also contains Grade 2 quality soil (very good quality agricultural land). The site lies within an area known to contain areas of multi-period archaeology from the Late Bronze Age to the medieval period as well as within a medieval deer park associated with Little Easton Manor that was redeveloped into an airfield in the Second World War. The

Site A77: Westward Extension to Highwood Quarry	
Effect	Description of Effects
	allocation of the site would likely result in 'less than substantial' harm at a low level to the significance of the Grade II* listed building, Stone Hall. The tree belt abutting the western boundary is designated as a Local Wildlife Site (LoWS) increasing the views to natural features. Historic land use and Little Easton Conservation area increases the sensitivity of the historic value of the site. Ecologically, the proposal could have an impact upon Priority habitats and species. This includes the direct impact to an adjacent LoWS, ancient trees (which are an irreplaceable habitat), potential hydrological impacts to retained habitats, and also the loss of and disturbance to habitats for Priority farmland species.
Social	At this stage in the plan-making process, it can be assumed that all proposals would lead to minimum policy standards (as established in the MLP) in regard to restoration and after-use (for example biodiversity value / net gain, or for social or economic gains). There are residential properties within 250m of the site however mitigation is considered achievable. Public Rights of Way (PRoWs) run through the site and will require diversion.
Economic	All candidate sites at this stage can be expected to provide jobs associated with the minerals industry.

Site A79: Crown Quarry – North of Wick Lane

Figure 36: Map of Site A79: Crown Quarry – North of Wick Lane

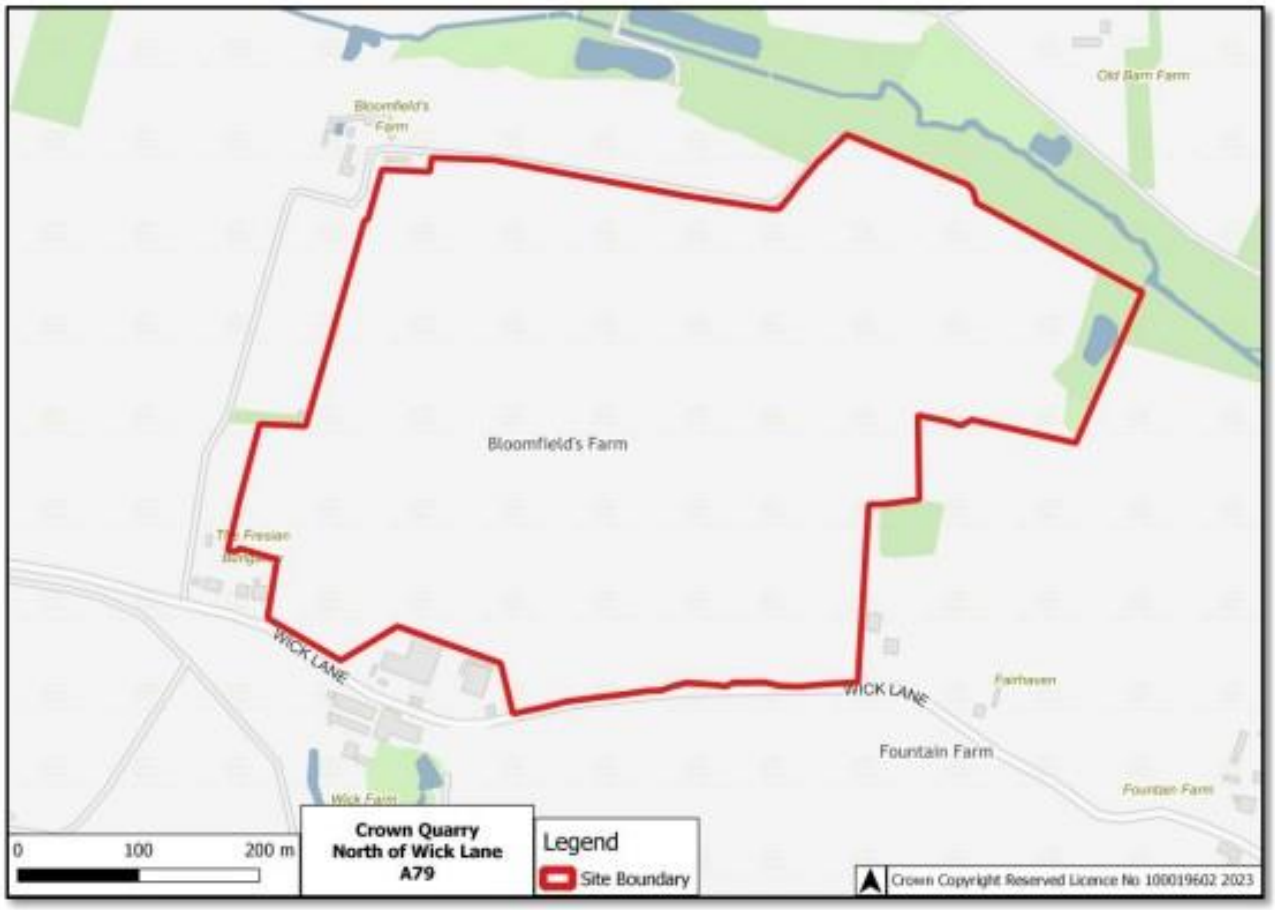


Table 45: Detailed assessment – Site A79: Crown Quarry – North of Wick Lane

Site A79: Crown Quarry – North of Wick Lane	
Effect	Description of Effects
Environmental	The HRA 'screens in' in the possibility of Likely Significant Effects on the integrity of a Habitats site, should this site be allocated, in regard to effects on Functionally Linked Land. The site is within a SPZ (Zone III) and has also been identified as having a 'medium' groundwater flood risk. The site contains Grade 2 quality soil (very good quality agricultural land). The site lies within an area of archaeological features as identified through aerial photographic evidence. Evidence for Iron Age settlement and Roman activity has been recovered from the surrounding area and

Site A79: Crown Quarry – North of Wick Lane	
Effect	Description of Effects
	the site has potential to contain Palaeolithic archaeological remains and Pleistocene faunal and palaeoenvironmental remains. The allocation of the site in conjunction with the existing active Crown Quarry site would likely result in 'less than substantial' harm at a mid-level to the significance of Grade II listed Wick Farmhouse, and Barn Adjacent to Road at Wick Farm. There would also be less than substantial harm at a mid-level to Bloomfields Farmhouse, and Barn Approximately 40 Metres North East of Bloomfields Farmhouse, and similarly to Fountain Farmhouse at the lowest level. Dedham Vale Area of Outstanding Natural Beauty (AONB) is located 1km to the north of the Site, however the flat plateau and hedgerows limit potential views from the site. Priority Habitats (Deciduous Woodland) are located along the northern boundary of the site. Birch Wood Ancient Woodland is also located 0.5k to the north-west of the site. Ecologically, the proposal could have an impact on Ardleigh Reservoir's priority habitats and species, including the direct loss of Hedgerow Priority habitat. This also includes impacts to water quantity and quality of the watercourses on and near to the site, as well as impacts on Priority Hedgerow habitat and adjacent Lowland Mixed Deciduous Woodland Priority habitat.
Social	At this stage in the plan-making process, it can be assumed that all proposals would lead to minimum policy standards (as established in the MLP) in regard to restoration and after-use (for example biodiversity value / net gain, or for social or economic gains). There are various residential properties within 250m of the site and although mitigation is considered possible it is likely to be difficult to achieve.
Economic	All candidate sites at this stage can be expected to provide jobs associated with the minerals industry. Access is proposed via an existing access serving Crown Quarry onto the Old Ipswich Road which is classified as a Secondary Distributor in Essex County Council's Development Management Route Hierarchy. Any access via Wick Lane would need to be considered further in consultation with the Highway Authority, and the proposal would require a new crossing point either side of Wick Lane to enable the existing site access to be used to export minerals by HGV.

Site A80: Crown Quarry – South of Wick Lane

Figure 37: Map of Site A80: Crown Quarry – South of Wick Lane

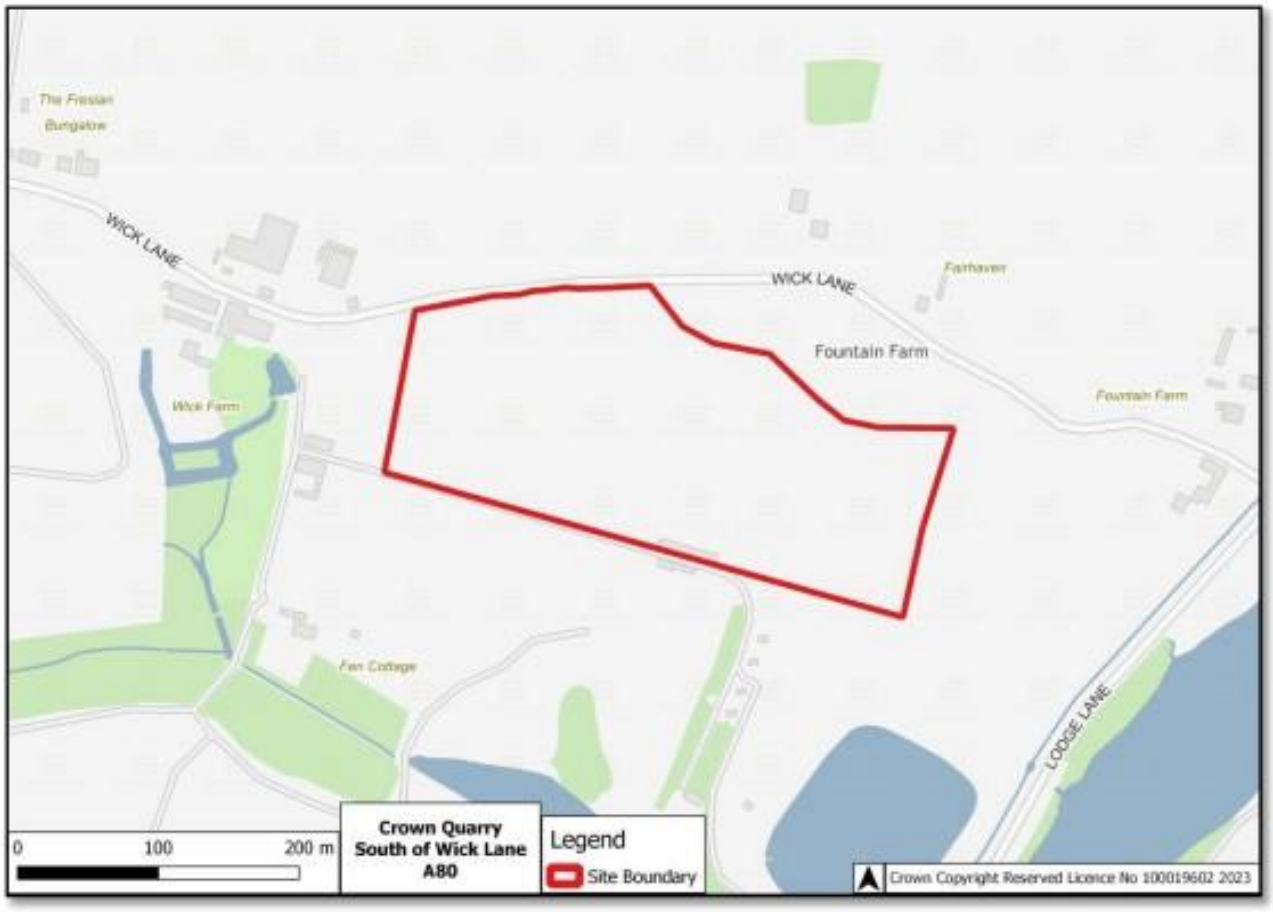


Table 46: Detailed assessment – Site A80: Crown Quarry – South of Wick Lane

Site A80: Crown Quarry – South of Wick Lane	
Effect	Description of Effects
Environmental	The site is within a SPZ (Zone III) and has also been identified as having a 'high' groundwater flood risk. The site contains Grade 2 quality soil (very good quality agricultural land). The site lies within an area of archaeological features as identified through aerial photographic evidence. Evidence for Iron Age settlement and Roman activity has been recovered from the surrounding area. The allocation of the site in conjunction with the existing active Crown Quarry site would likely result

Site A80: Crown Quarry – South of Wick Lane	
Effect	Description of Effects
	in less than substantial' harm at a mid-level to Wick Farmhouse, and Barn Adjacent to Road at Wick Farm. There would also be 'less than substantial' harm at a low level to the significance of Grade II listed Fountain Farmhouse. Dedham Vale Area of Outstanding Natural Beauty (AONB) is located 1km to the north of the site, however the flat plateau and hedgerows limit potential views from the site. Priority Habitats (Deciduous Woodland) are located along the northern boundary of the Site. Birch Wood Ancient Woodland is also located 0.5k to the north-west of the site. Ecologically, there could be an impact upon Ardleigh Reservoir and other surrounding waterbodies. There could also be an impact upon Priority habitats and species, including Lowland Mixed Deciduous Woodland and Hedgerow Priority habitats.
Social	At this stage in the plan-making process, it can be assumed that all proposals would lead to minimum policy standards (as established in the MLP) in regard to restoration and after-use (for example biodiversity value / net gain, or for social or economic gains). There are various residential properties within 250m of the site and although mitigation is considered possible it is likely to be difficult to achieve.
Economic	All candidate sites at this stage can be expected to provide jobs associated with the minerals industry. Access proposed via an existing access serving Crown Quarry onto the Old Ipswich Road which is classified as a Secondary Distributor in Essex County Council's Development Management Route Hierarchy

Site A82: Colemans Farm – Elm Springs Extension

Figure 38: Map of Site A82: Colemans Farm – Elm Springs Extension

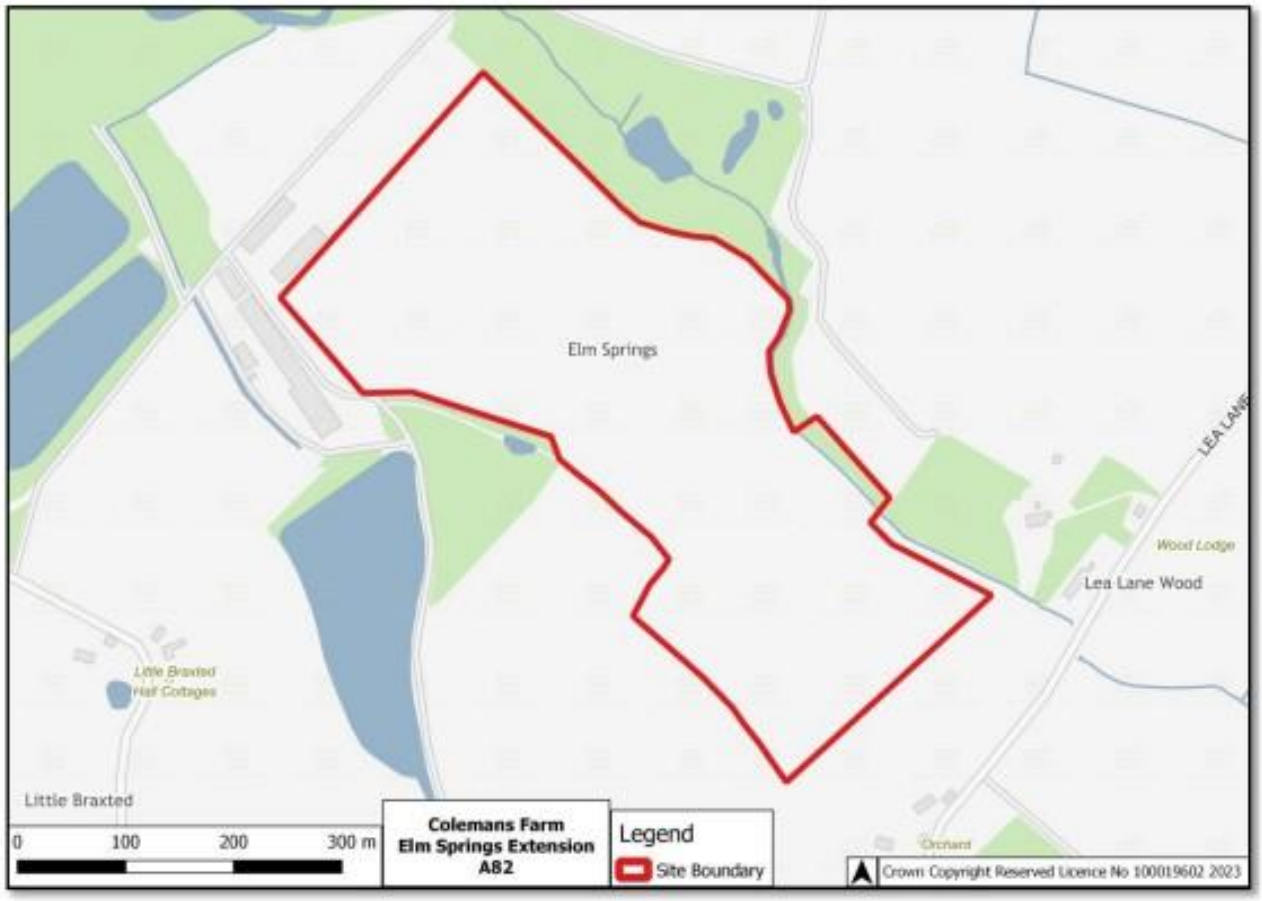


Table 47: Detailed assessment – Site A82: Colemans Farm – Elm Springs Extension

Site A82: Colemans Farm – Elm Springs Extension	
Effect	Description of Effects
Environmental	The HRA 'screens in' in the possibility of Likely Significant Effects on the integrity of a Habitats site, should this site be allocated, in regard to water quality. Should the site's groundwater be affected, this could in turn affect the hydrology of nearby habitats. The site is within a Drinking Water Protected Area (Surface Water) and has also assessed as having a 'medium' potential for surface water flood risk as identified within the SFRA. The site contains (in part) Grade 2 quality soil (very good quality agricultural land). The site lies within an area of archaeological features

Site A82: Colemans Farm – Elm Springs Extension	
Effect	Description of Effects
	as identified through aerial photographic evidence; these may indicate ritual and agricultural activity associated with nearby settlement. There is the potential for a low-level of less than substantial harm to the important group of heritage assets at Little Braxted (including the Grade I listed Church of St Nicholas), due to environmental impacts on the tranquillity of their setting. There is the potential for low level of less than substantial harm to other nearby heritage assets, resulting from the movement of traffic. Elm Springs Priority Habitat (Deciduous Woodland) defines the north-eastern site boundary, and Strowling & Crierswood Ancient Woodland is located 0.3km to the south-east of the site. The River Blackwater valley is located 0.1km to the north, with strong intervisibility between the site and the river.
Social	At this stage in the plan-making process, it can be assumed that all proposals would lead to minimum policy standards (as established in the MLP) in regard to restoration and after-use (for example biodiversity value / net gain, or for social or economic gains). There are various residential properties within 250m of the site and although mitigation is considered possible it is likely to be difficult to achieve. A Public Right of Way (PRoW) runs adjacent to, but not through, the site.
Economic	All candidate sites at this stage can be expected to provide jobs associated with the minerals industry.

Site A83: Colemans Farm – Hole Farm

Figure 39: Map of Site A83: Colemans Farm – Hole Farm

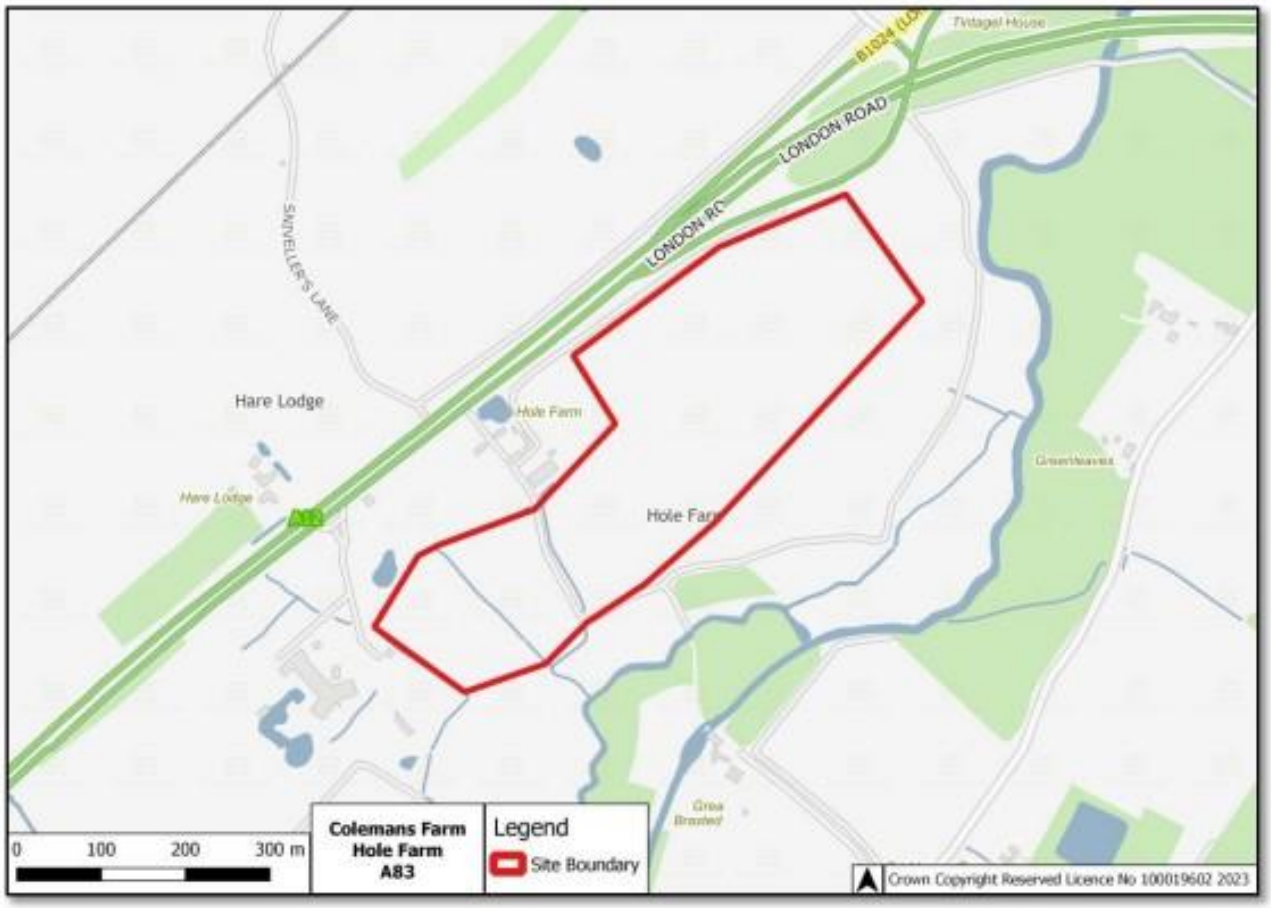


Table 48: Detailed assessment – Site A83: Colemans Farm – Hole Farm

Site A83: Colemans Farm – Hole Farm	
Effect	Description of Effects
Environmental	The HRA 'screens in' in the possibility of Likely Significant Effects on the integrity of a Habitats site, should this site be allocated, in regard to water quality. The site is within a Drinking Water Protected Area (Surface Water) and is also assessed as having a 'medium' potential for surface water flood risk as identified within the SFRA, as well as a 'medium' groundwater flood risk. The site contains (in part) Grade 2 quality soil (very good quality agricultural land). The site lies within 300m

Site A83: Colemans Farm – Hole Farm	
Effect	Description of Effects
	of a scheduled monument and further evidence for extensive prehistoric ritual activity. Additionally the site lies within an area of archaeological features as identified through aerial photographic evidence and also contains a circular cropmark feature and pits suggestive of ritual or settlement activity. The allocation of the site and the proposed quarrying works would result in a high level of less than substantial harm to the Grade II* Listed Hole Farmhouse; the quarrying of the site would fundamentally alter the last surviving part of the listed building's original setting. Priority Habitats (Deciduous Woodland) are located along the full extent of the south-eastern boundary, adjacent to the River Blackwater. Kelvedon Hall Wood (Ancient Woodland) is located approximately 0.5km to the east of the site, on the opposing side of the River.
Social	At this stage in the plan-making process, it can be assumed that all proposals would lead to minimum policy standards (as established in the MLP) in regard to restoration and after-use (for example biodiversity value / net gain, or for social or economic gains). There are various residential properties within 250m of the site and although mitigation is considered possible it is likely to be difficult to achieve. A Public Right of Way (PRoW) runs through the site and will require diversion.
Economic	All candidate sites at this stage can be expected to provide jobs associated with the minerals industry. Access is proposed via a modified access serving Appleford Farm onto Braxted Road which is a Secondary Distributor in Essex County Council's Development Management Route Hierarchy. From a highway viewpoint Braxted Road, Oak Road, and Henry Dixon Road, and associated connections to the Main/Strategic Road Network via the A12 Trunk Road, are not suitable in their current form.

Site A84: Colemans Farm – Appleford Farm North Extension

Figure 40: Map of Site A84: Colemans Farm – Appleford Farm North Extension

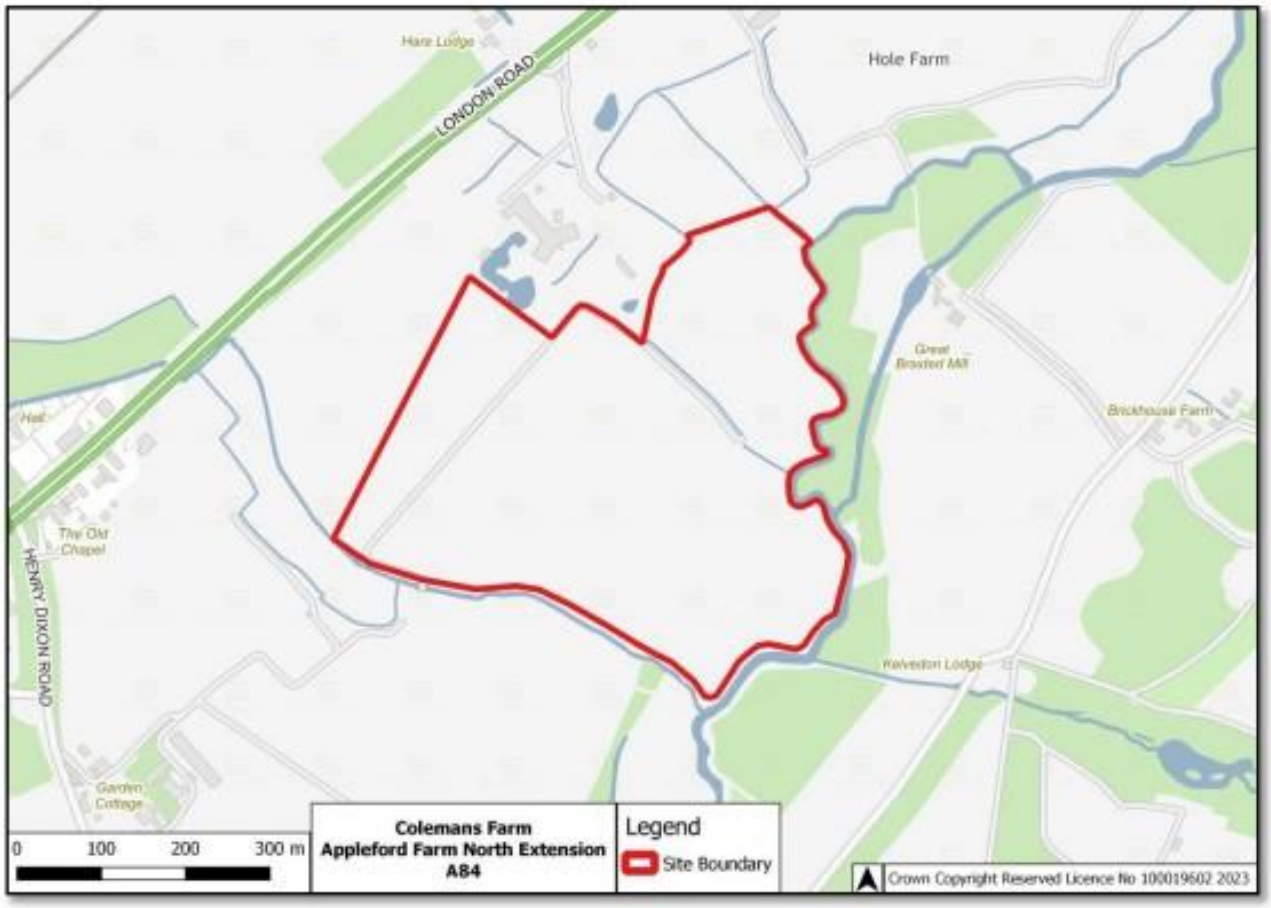


Table 49: Detailed assessment – Site A84: Colemans Farm – Appleford Farm North Extension

Site A84: Colemans Farm – Appleford Farm North Extension	
Effect	Description of Effects
Environmental	The HRA 'screens in' in the possibility of Likely Significant Effects on the integrity of a Habitats site, should this site be allocated, in regard to water quality. Should the site's groundwater be affected, this may in turn affect the hydrology of on-site and off-site habitats. The site is within a Drinking Water Protected Area (Surface Water), has been assessed as having a 'high' potential for surface water flood risk (as identified within the SFRA) as well as a 'high' groundwater flood risk. The site is

Site A84: Colemans Farm – Appleford Farm North Extension	
Effect	Description of Effects
	predominantly within FRZ3 (56%) and therefore is at risk from fluvial flooding. The site contains (in part) Grade 2 quality soil (very good quality agricultural land). A scheduled monument lies within the site and the site lies within an area of archaeological features as identified through aerial photographic evidence and archaeological investigation. This includes a Neolithic ritual monument and later prehistoric activity forming a multi-period ritual landscape. The site has further potential to contain Palaeolithic archaeological remains and Pleistocene faunal and palaeoenvironmental remains. The site is located in close proximity to three listed heritage assets, however the impact on these assets would be low and would be associated with the tranquillity of the heritage assets' setting. Priority Habitats (Deciduous Woodland) are located along part of the eastern boundary, adjacent to the River Blackwater. Kelvedon Hall Wood (Ancient Woodland) is located approximately 0.5km to the east of the site, on the opposing side of the River.
Social	At this stage in the plan-making process, it can be assumed that all proposals would lead to minimum policy standards (as established in the MLP) in regard to restoration and after-use (for example biodiversity value / net gain, or for social or economic gains). There are various residential properties within 250m of the site and although mitigation is considered possible it is likely to be difficult to achieve. Public Rights of Way (PRoWs) run through the site and will require diversion.
Economic	All candidate sites at this stage can be expected to provide jobs associated with the minerals industry. Access is proposed via a modified access serving Appleford Farm onto Braxted Road which is a Secondary Distributor in Essex County Council's Development Management Route Hierarchy. From a highway viewpoint Braxted Road, Oak Road, and Henry Dixon Road, and associated connections to the Main/Strategic Road Network via the A12 Trunk Road, are not suitable in their current form.

Site A85: Martells – North of Frating Road (East)

Figure 41: Map of Site A85: Martells – North of Frating Road (East)

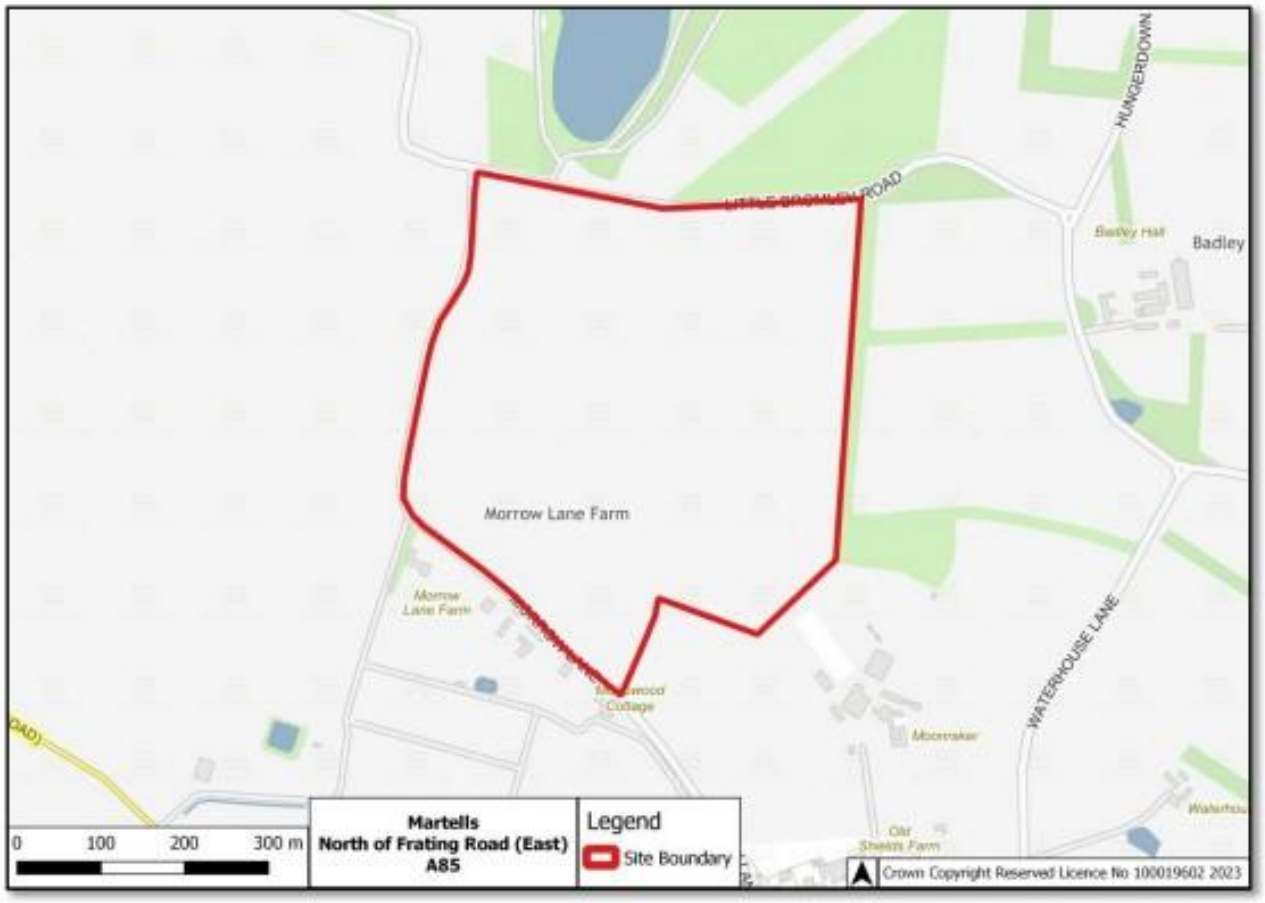


Table 50: Detailed assessment – Site A85: Martells – North of Frating Road (East)

Site A85: Martells – North of Frating Road (East)	
Effect	Description of Effects
Environmental	The HRA 'screens in' in the possibility of Likely Significant Effects on the integrity of a Habitats site, should this site be allocated, in regard to effects on Functionally Linked Land. The site is within a SPZ (Zone III) and is also assessed as having a 'medium' potential for surface water flood risk as identified within the SFRA. The site contains Grade 1 quality soil (excellent quality agricultural land). The site lies within 200m of a scheduled monument and contains evidence associated with the monument recorded through aerial photography. The site also has the

Site A85: Martells – North of Frating Road (East)	
Effect	Description of Effects
	potential to contain Palaeolithic archaeological remains and Pleistocene palaeoenvironmental remains. Dedham Vale Area of Outstanding Natural Beauty (AONB) is located 1km to the north of the site, with the Stour and Orwell Estuaries Ramsar and Site of Special Scientific Interest (SSSI) located 2.5km to the north-east. The flat plateau and hedgerows limit potential views from the Site towards the Ramsar, AONB and SSSI.
Social	At this stage in the plan-making process, it can be assumed that all proposals would lead to minimum policy standards (as established in the MLP) in regard to restoration and after-use (for example biodiversity value / net gain, or for social or economic gains). There are various residential properties within 250m of the site and although mitigation is considered possible it is likely to be difficult to achieve. A Public Right of Way (PRoW) runs through the site and will require diversion.
Economic	All candidate sites at this stage can be expected to provide jobs associated with the minerals industry. Access is proposed via an existing access serving Martells Quarry onto Slough Lane which is classified as a local road in Essex County Council's Development Management Route Hierarchy. To export minerals by HGV via the existing access the site would require a new crossing point of Frating Road (B1029) and Morrow Lane to enable access to the existing site access and a haul road on the south side of Frating Road, this would be shared with site A86.

Site A86: Martells – North of Frating Road (West)

Figure 42: Map of Site A86: Martells – North of Frating Road (West)

Table 51: Detailed assessment – Site A86: Martells – North of Frating Road (West)

Site A86: Martells – North of Frating Road (West)	
Effect	Description of Effects
Environmental	The HRA 'screens in' in the possibility of Likely Significant Effects on the integrity of a Habitats site, should this site be allocated, in regard to effects on Functionally Linked Land. The site is within a SPZ (Zone III) and is also assessed as having a 'medium' potential for surface water flood risk as identified within the SFRA. The site contains Grade 1 quality soil (excellent quality agricultural land) and Grade 2 quality soil (very good quality agricultural land). The site lies adjacent to a scheduled monument and within an area of dense archaeological

Site A86: Martells – North of Frating Road (West)	
Effect	Description of Effects
	features as identified through aerial photographic evidence. The site contains evidence of trackways and land division which extend from a multi-period archaeological site containing evidence for ritual, settlement, and industrial activity. The site also has the potential to contain Palaeolithic archaeological remains and Pleistocene palaeoenvironmental remains. The allocation of the site would likely result in 'less than substantial' harm at a low level to the significance of Ardleigh Conservation Area through a change within its setting. Further, any impact to Grade II listed New Hall is likely to be a low level of 'less than substantial' harm due to change of its wider setting but also due to the intensified use of the site. Dedham Vale Area of Outstanding Natural Beauty (AONB) is located 1km to the north of the site, with the Stour and Orwell Estuaries Ramsar and Site of Special Scientific Interest (SSSI) located 2.5km to the north-east. The flat plateau and hedgerows limit potential views from the Site towards the Ramsar, AONB and SSSI. Public Rights of Way (PRoWs) run through the site and will require diversion. Ecologically, the site could have impacts upon irreplaceable habitats i.e. a candidate veteran tree on site which is potentially ancient. There could also be an impact upon a national designation (Ardleigh Gravel Pit SSSI), and also impacts upon Priority habitats and species; particularly Hedgerow Priority habitat and farmland species.
Social	At this stage in the plan-making process, it can be assumed that all proposals would lead to minimum policy standards (as established in the MLP) in regard to restoration and after-use (for example biodiversity value / net gain, or for social or economic gains). There are various residential properties within 250m of the site and although mitigation is considered possible it is likely to be difficult to achieve.
Economic	All candidate sites at this stage can be expected to provide jobs associated with the minerals industry. Access is proposed via an existing access serving Martells Quarry onto Slough Lane which is classified as a local road in Essex County Council's Development Management Route Hierarchy. To export minerals by HGV via the existing access the site would require a new crossing point of Frating Road (B1029) and Morrow Lane to enable access to the existing site access and a haul road on the south side of Frating Road, this would be shared with site A85.

Site A87: Martells – East of Slough Lane

Figure 43: Map of Site A87: Martells – East of Slough Lane

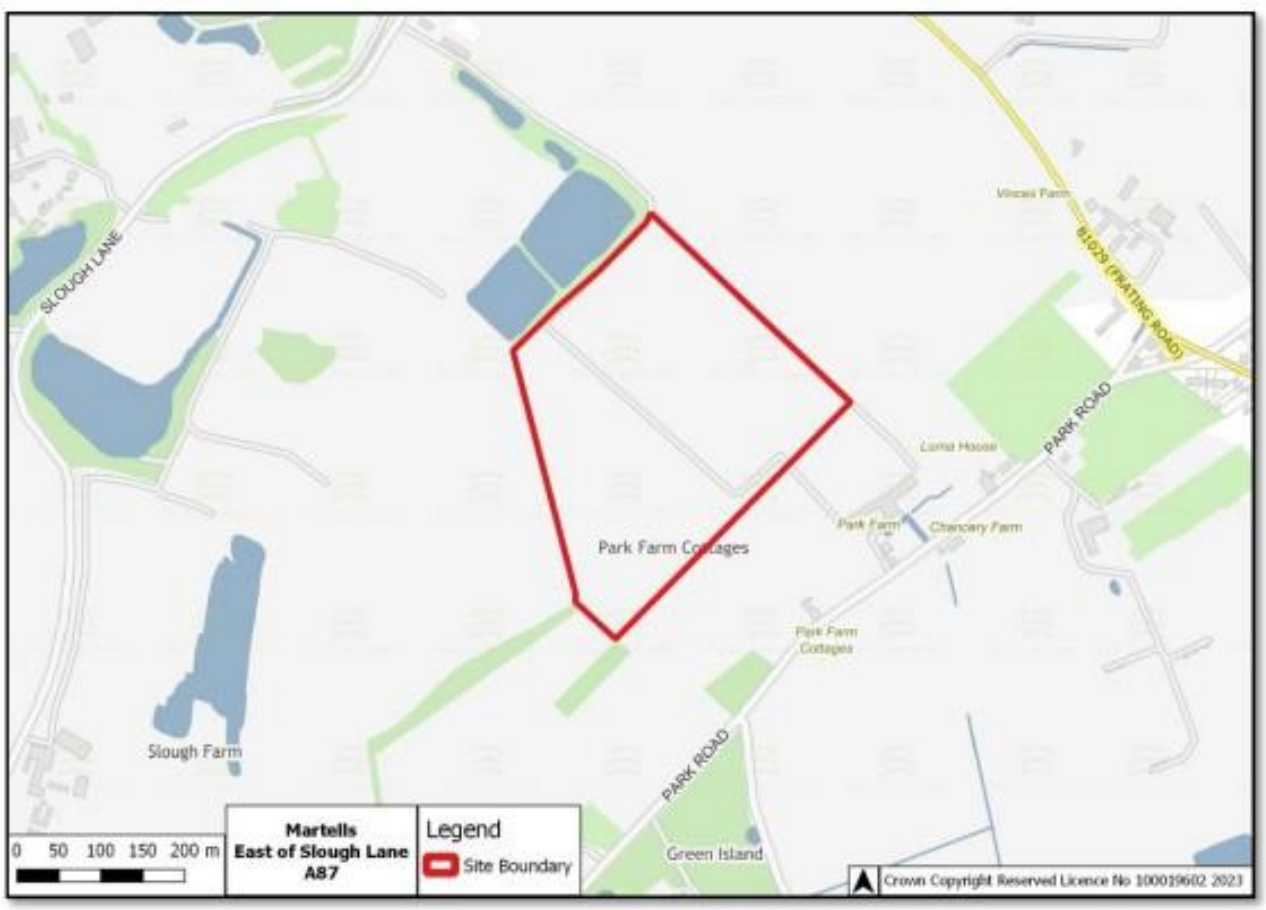


Table 52: Detailed assessment – Site A87: Martells – East of Slough Lane

Site A87: Martells – East of Slough Lane	
Effect	Description of Effects
Environmental	The HRA 'screens in' in the possibility of Likely Significant Effects on the integrity of a Habitats site, should this site be allocated, in regard to effects on Functionally Linked Land. The proposal could also have an impact upon a national designation (Ardleigh Gravel Pit SSSI) as well as Priority habitats and species. This includes impacts to water quantity and quality of the adjacent watercourse, waterbody, Lowland Mixed Deciduous Woodland and Hedgerow Priority habitats. The site is within a SPZ (Zone III). The site contains Grade 1 quality soil (excellent quality

Site A87: Martells – East of Slough Lane	
Effect	Description of Effects
	agricultural land) and Grade 2 quality soil (very good quality agricultural land). The site lies within an area of archaeological features as identified through aerial photographic evidence; this includes evidence for a probable Roman road, and linear features. The site also lies adjacent to a scheduled monument and is likely to contain archaeological remains associated with this designation. The allocation of the site would likely result in 'less than substantial' harm at a mid-level to the significance of Grade II listed Ardleigh Park through a change within its setting. There are few important habitats within the vicinity of the Site, however a number of Priority Habitats (Deciduous Woodland) are located in the surrounding area although do not border the site boundaries.
Social	At this stage in the plan-making process, it can be assumed that all proposals would lead to minimum policy standards (as established in the MLP) in regard to restoration and after-use (for example biodiversity value / net gain, or for social or economic gains). There are residential properties within 250m of the site however mitigation is considered achievable. A Public Right of Way (PRoW) runs through the site and will require diversion.
Economic	All candidate sites at this stage can be expected to provide jobs associated with the minerals industry. Access is proposed via an existing access serving Martells Quarry onto Slough Lane which is classified as a local road in Essex County Council's Development Management Route Hierarchy.

Site A88: Gurnhams Farm

Figure 44: Map of Site A88: Gurnhams Farm

Table 53: Detailed assessment – Site A88: Gurnhams Farm

Site A88: Gurnhams Farm	
Effect	Description of Effects
Environmental	The HRA 'screens in' in the possibility of Likely Significant Effects on the integrity of a Habitats site, should this site be allocated, in regard to effects on Functionally Linked Land. The proposal could also have an impact upon Priority habitats and species, including a nearby Local Wildlife Site and ancient woodland (which is an irreplaceable habitat), mature trees, and retained habitats. Ecologically impacts are also highlighted in regard to the loss of and disturbance to habitats for Priority farmland species. The site is within a SPZ (Zone III) and is assessed as

Site A88: Gurnhams Farm	
Effect	Description of Effects
	having a 'medium' potential for surface water flood risk as identified within the SFRA. The site contains (in part) Grade 2 quality soil (very good quality agricultural land). The site lies within an area which contains extensive cropmarks, and those within the site comprises a track way and linear features. To the north and north-east of the site a wide range of enclosures are recorded from aerial photography tentatively interpreted as being of prehistoric date. The allocation of the site would likely result in 'less than substantial' harm at a mid-level to the significance of Grade II listed Gurnhams through a change within its setting. The impact to Grade II listed Fisher's Farmhouse is likely to be a low level of 'less than substantial' harm due to the intervening presence of the A133 and established vegetation. The impact on Grade II listed Warren's Farmhouse is likely to be the lowest level of 'less than substantial' harm due to the distance from the site. High Barn Wood and Shair Wood abut the site boundary and are designated Local Wildlife Sites (LoWS) and Ancient Woodland. Both demonstrate a significant contribution toward the local green infrastructure and visual amenity.
Social	At this stage in the plan-making process, it can be assumed that all proposals would lead to minimum policy standards (as established in the MLP) in regard to restoration and after-use (for example biodiversity value / net gain, or for social or economic gains). There are various residential properties within 250m of the site and although mitigation is considered possible it is likely to be difficult to achieve. Public Rights of Way (PRoWs) run through the site and will require diversion.
Economic	All candidate sites at this stage can be expected to provide jobs associated with the minerals industry. Access is proposed via an existing access off Church Road which is classified as a Secondary Distributor in Essex County Council's Development Management Route Hierarchy. There are highway concerns about the operation of the junction of Church Road with the A133 as there has been a high accident record in recent years. he existing vehicle movements on the A133, particularly in the peak periods and the proposed increase in the number of slow turning HGVs in/out of the Church Road/A133 junction would make it difficult for HGVs to access the A133 safely without mitigation measures, particularly right turning movements onto the A133.

Site A89: Covenbrooke Hall Farm

Figure 45: Map of Site A89: Covenbrooke Hall Farm

Table 54: Detailed assessment – Site A89: Covenbrooke Hall Farm

Site A89: Covenbrooke Hall Farm	
Effect	**Description of Effects**
Environmental	The site is within a SPZ (Zone III) and also within a Drinking Water Protected Area (Surface Water). The site is also assessed as having a 'medium' potential for surface water flood risk as identified within the SFRA. The site contains Grade 2 quality soil (very good quality agricultural land). The site contains evidence recorded on the Essex Historic Environment Record (EHER) through aerial photography for historic field boundaries and historic quarrying and a modern military

Site A89: Covenbrooke Hall Farm	
Effect	Description of Effects
	related structure is recorded within the site. The site also lies along a Roman road. The site will affect the setting of four designated heritage assets. Due to the proximity of the site to the listed buildings and the contribution the site makes to the significance of these buildings, the proposed site is considered to cause a mid to low level of harm to their significance. Priority Habitat (Coastal and Floodplain Grazing Marsh) is located 0.3km to the north-east of the site, which is also surrounding by Priority Habitats (Deciduous Woodland) located along the River Blackwater. Belcher's & Broadfield Woods Site of Special Scientific Interest (SSSI) is located 3km to the north-east.
Social	At this stage in the plan-making process, it can be assumed that all proposals would lead to minimum policy standards (as established in the MLP) in regard to restoration and after-use (for example biodiversity value / net gain, or for social or economic gains). There are various residential properties within 250m of the site and although mitigation is considered possible it is likely to be difficult to achieve. Public Rights of Way (PRoWs) run through the site and will require diversion.
Economic	All candidate sites at this stage can be expected to provide jobs associated with the minerals industry. Site A89 proposes access onto Kings Lane which forms part of the Local Road Network prior to accessing the A120 Trunk Road that forms part of the Strategic Road network. Neither Kings Road or its junction with the A120 Trunk Road are considered 'suitable' in their current form; from the information provided it is unclear if safe access to the site can be achieved from Kings Lane and whether the intensification in use of the A120/Kings Lane junction by HGVs can be appropriately mitigated.

Site A90: Rayne Quarry – Northern Extension

Figure 46: Map of Site A90: Rayne Quarry – Northern Extension

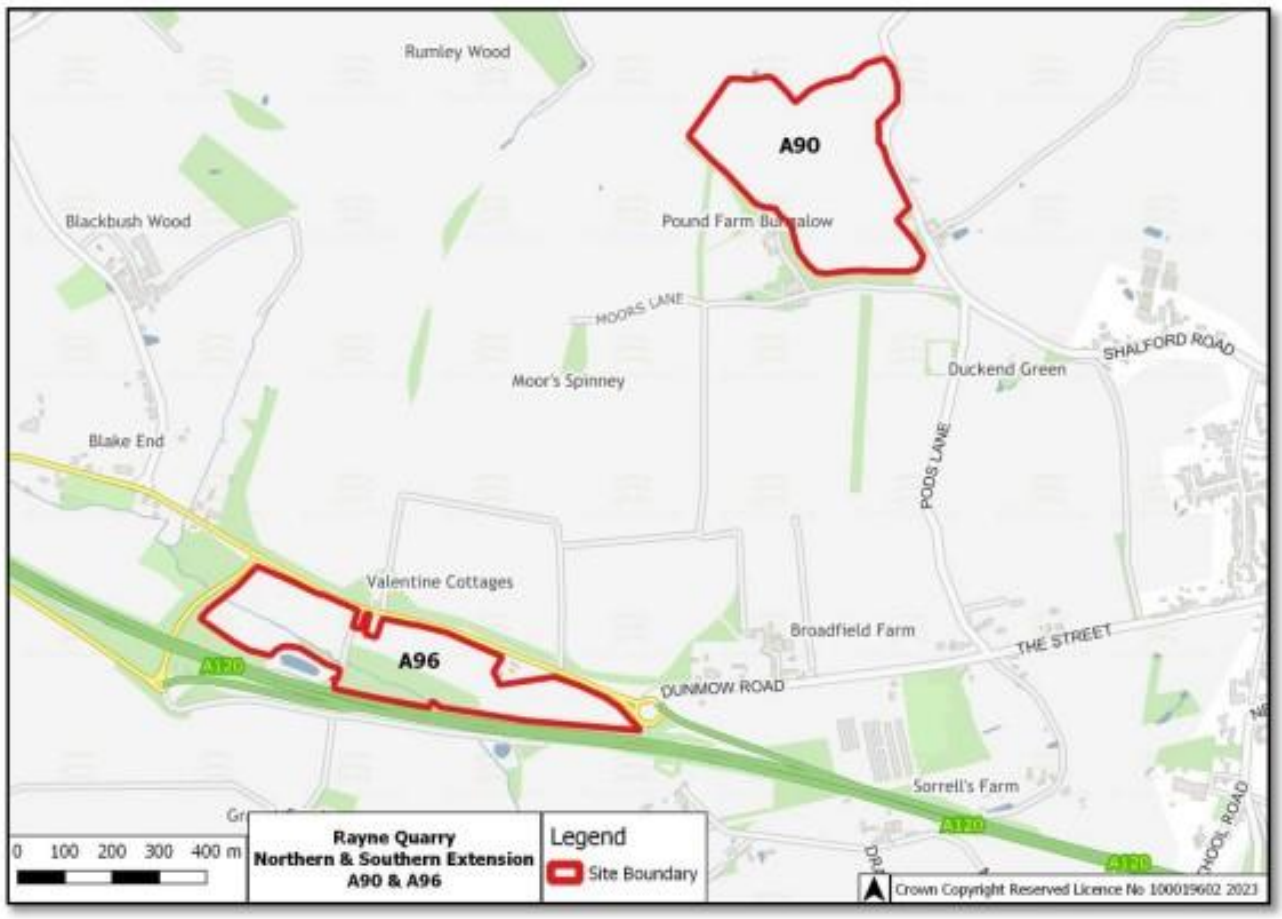


Table 55: Detailed assessment – Site A90: Rayne Quarry – Northern Extension

Site A90: Rayne Quarry – Northern Extension	
Effect	Description of Effects
Environmental	The site is within a SPZ (Zone III) and is also assessed as having a 'high' potential for surface water flood risk as identified within the SFRA. The site contains Grade 2 quality soil (very good quality agricultural land). The site contains evidence recorded through aerial photography for historic field boundaries; Prehistoric, Late Iron Age/Roman, and Roman settlement activity is also recorded in the surrounding area. The allocation of the site would likely result in 'less than substantial' harm at

Site A90: Rayne Quarry – Northern Extension	
Effect	Description of Effects
	a mid-level to the significance of four Grade II listed buildings through change within their settings. The allocation of the site would also likely result in 'less than substantial' harm at a low level to the significance of three further Grade II listed buildings through change within their settings. Rumley Wood and Golden Grove Ancient Woodlands are located 0.3km to the north-west of the site. The two Ancient Woodlands have strong intervisibility with the site, with Footpath 4 (Rayne) also providing direct access from the site to Golden Grove. Ecologically, there could be moderate impacts upon irreplaceable habitats, in particular veteran trees on site. There could also be an impact upon Priority habitats and species including hedgerows, as well as disturbance and loss of habitat for Priority farmland species.
Social	At this stage in the plan-making process, it can be assumed that all proposals would lead to minimum policy standards (as established in the MLP) in regard to restoration and after-use (for example biodiversity value / net gain, or for social or economic gains). There are various residential properties within 250m of the site and although mitigation is considered possible it is likely to be difficult to achieve. A Public Right of Way (PRoW) runs through the site and will require diversion.
Economic	All candidate sites at this stage can be expected to provide jobs associated with the minerals industry. Access is proposed via an existing access serving Rayne Quarry onto the B1256 which is classified as a Secondary Distributor in Essex County Council's Development Management Route Hierarchy

Site A91: Land at Chignal St James

Figure 47: Map of Site A91: Land at Chignal St James

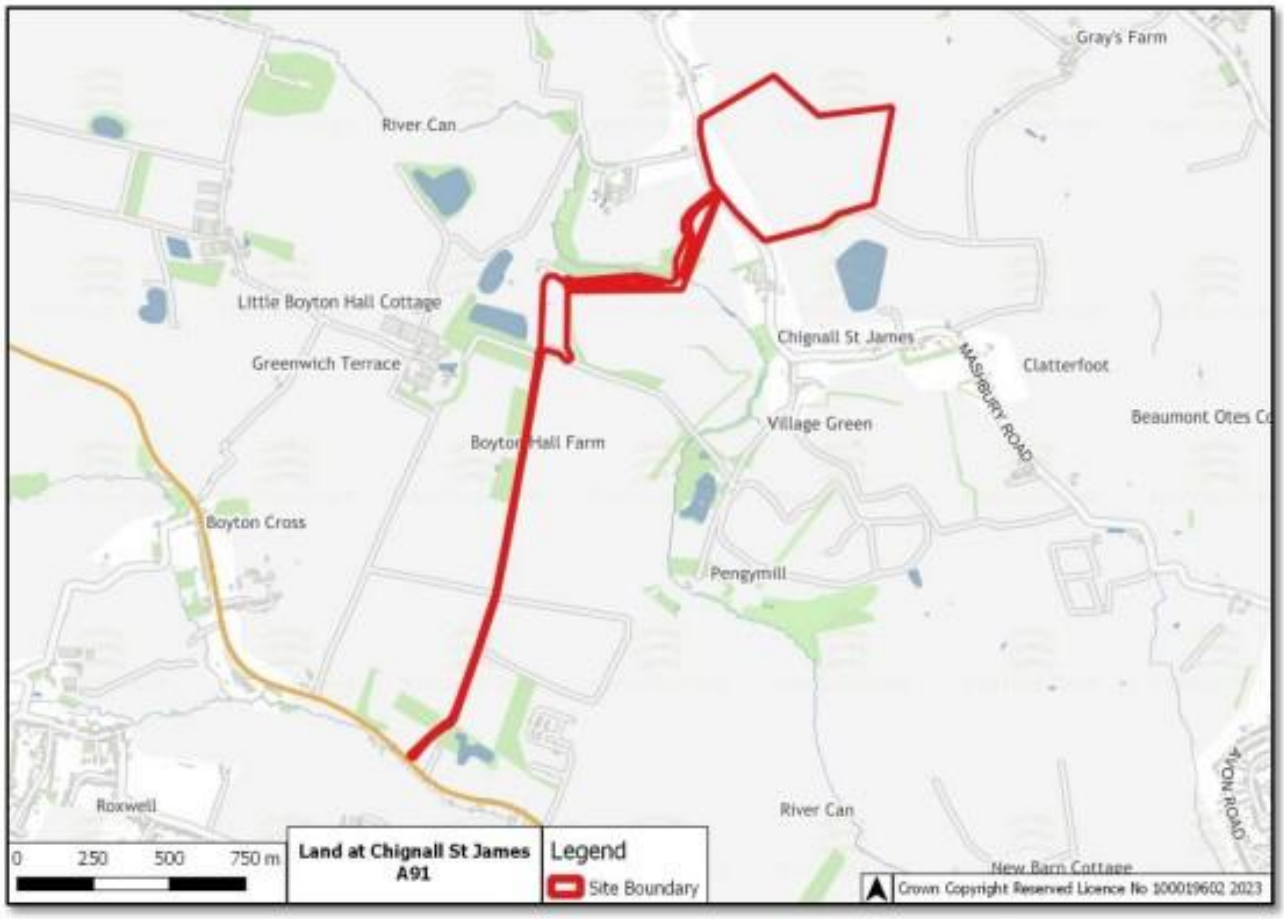


Table 56: Detailed assessment – Site A91: Land at Chignal St James

Site A91: Land at Chignal St James	
Effect	**Description of Effects**
Environmental	The site is assessed as having a 'medium' potential for surface water flood risk as identified within the SFRA, and also as having a 'medium' groundwater flood risk. The site contains (in part) Grade 2 quality soil (very good quality agricultural land). To the north-west of the site lies a Scheduled Roman Villa and the site itself sits within the landscape associated with the villa. Immediately to the south-west of the site excavations identified a middle to late Iron Age settlement. The

Site A91: Land at Chignal St James	
Effect	Description of Effects
	allocation of the site would likely result in 'less than substantial' harm at the lowest level to the significance of four Grade II listed building through change within its settings. The site contains a Priority Habitat (Deciduous Woodland) where the proposed access road cuts through.
Social	At this stage in the plan-making process, it can be assumed that all proposals would lead to minimum policy standards (as established in the MLP) in regard to restoration and after-use (for example biodiversity value / net gain, or for social or economic gains). There are residential properties within 250m of the site however mitigation is considered achievable. Public Rights of Way (PRoWs) run through the site and will require diversion.
Economic	All candidate sites at this stage can be expected to provide jobs associated with the minerals industry. Access would utilise the existing access onto A1060 and the haul road, which benefits from a ghost island right turn lane. Nevertheless, appropriate visibility splays will need to be demonstrated.

Site A92: Land at Pattiswick Hall Farm – Small Site

Figure 48: Map of Site A92: Land at Pattiswick Hall Farm – Small Site

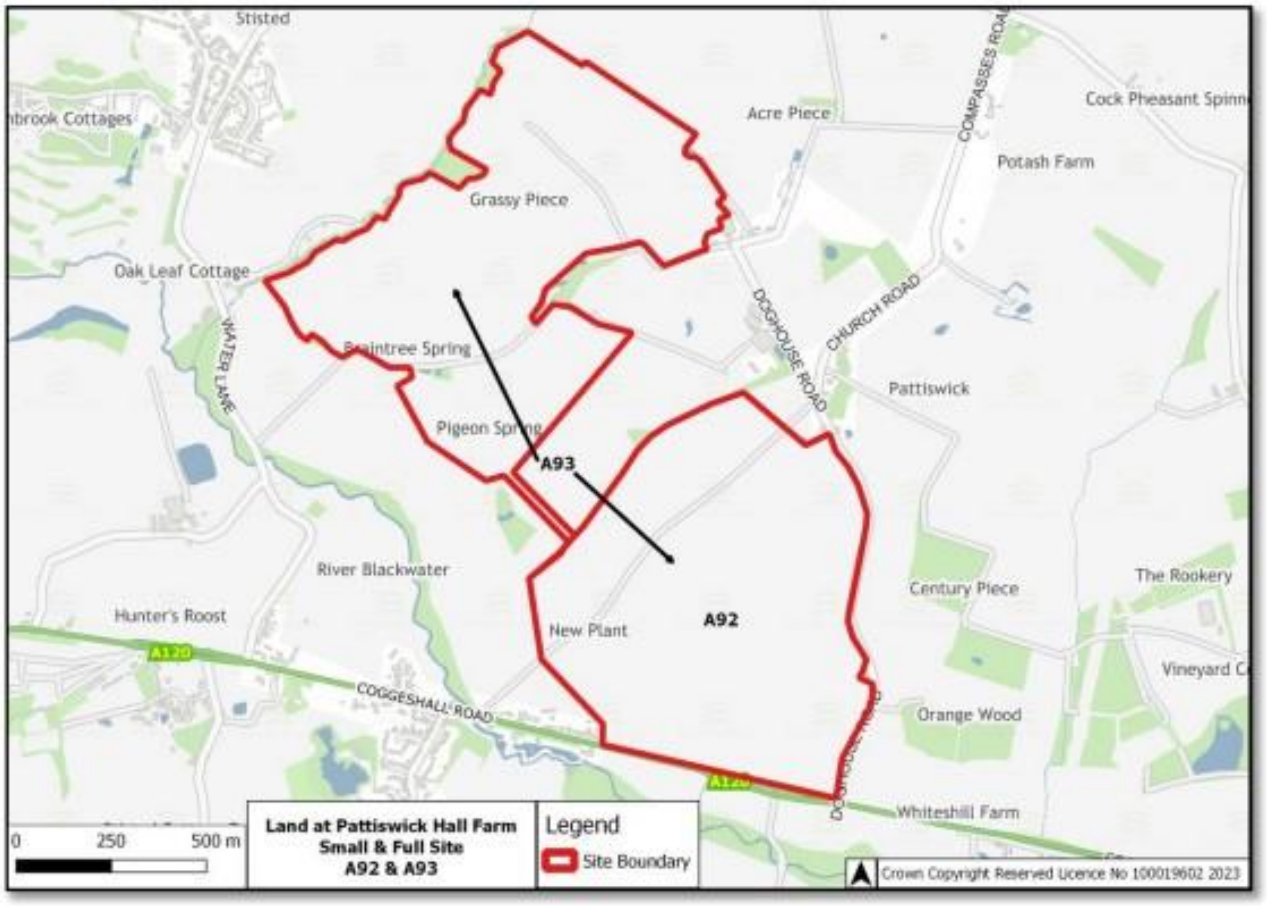


Table 57: Detailed assessment – Site A92: Land at Pattiswick Hall Farm – Small Site

Site A92: Land at Pattiswick Hall Farm – Small Site	
Effect	**Description of Effects**
Environmental	The site is within a SPZ (Zone III) and also within a Drinking Water Protected Area (Surface Water). The Site contains (in part) Grade 2 quality soil (very good quality agricultural land). The site lies within an area of archaeological features as identified through aerial photographic evidence. The site also lies adjacent to a Roman road and contains cropmark evidence for possible settlement or ritual activity and agricultural activity. The site is within 200m of three listed buildings and the undeveloped, agrarian landscape of the site contributes to their

Site A92: Land at Pattiswick Hall Farm – Small Site	
Effect	**Description of Effects**
	setting and the significance of these assets. Allocation would likely lead to a fundamental change in land character which would undermine the ability to understand and appreciate the significance of the assets. There are few important landscape designations within the surrounding landscape, with the exception of a few Priority Habitats (Coastal and Floodplain Grazing Marsh and Deciduous Woodland) surrounding the River Blackwater to the south and south-west. There are also a number of other Priority Habitats (Deciduous Woodland) in the landscape surrounding the site, such as Prior's Wood and Captain's Wood. Overall, strong views are obtained from the site into the surrounding characteristic landscape. Ecologically there could be impacts upon Priority habitats and species; this includes potential impacts to the River Blackwater and its associated riparian habitats. In addition, there could be impacts upon irreplaceable habitats, i.e. an ancient tree situated within the site, as well as the direct loss of two hedgerows and a notable tree.
Social	At this stage in the plan-making process, it can be assumed that all proposals would lead to minimum policy standards (as established in the MLP) in regard to restoration and after-use (for example biodiversity value / net gain, or for social or economic gains). There are various residential properties within 250m of the site and although mitigation is considered possible it is likely to be difficult to achieve. A Public Right of Way (PRoW) runs through the site and will require diversion.
Economic	All candidate sites at this stage can be expected to provide jobs associated with the minerals industry. The creation of a new access onto the A120 is contrary to Department for Transport Circular 1/2022 Strategic Road network and the delivery of sustainable development. As such, to date there has been an initial policy objection from National Highways.

Site A93: Land at Pattiswick Hall Farm – Full Site

Figure 49: Map of Site A93: Land at Pattiswick Hall Farm – Full Site

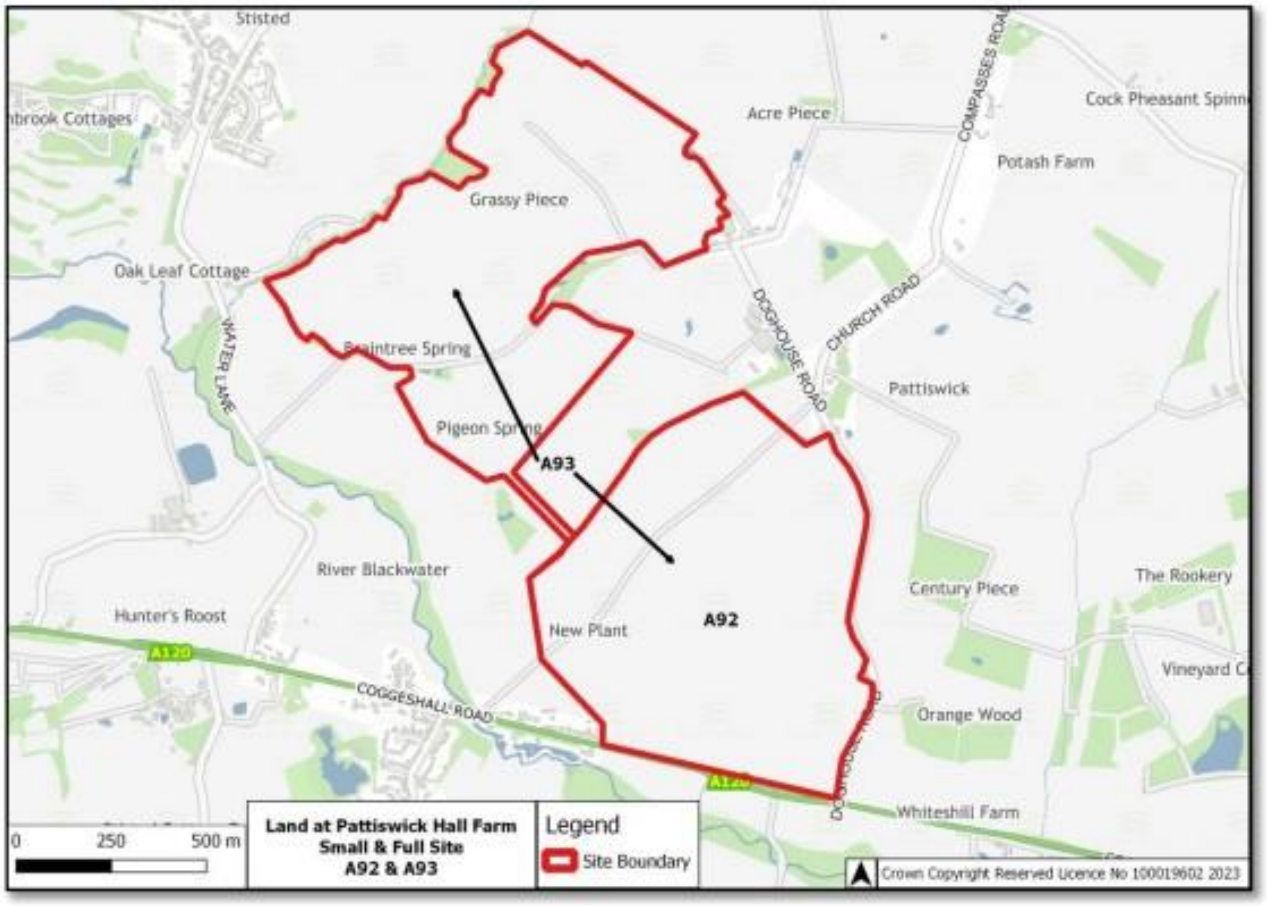


Table 58: Detailed assessment – Site A93: Land at Pattiswick Hall Farm – Full Site

Site A93: Land at Pattiswick Hall Farm – Full Site	
Effect	**Description of Effects**
Environmental	The site is within a SPZ (Zone III) and also within a Drinking Water Protected Area (Surface Water). The site contains (in part) Grade 2 quality soil (very good quality agricultural land). The site lies within an area of archaeological features as identified through aerial photographic evidence and also adjacent to a Roman road; the site contains cropmark evidence for possible settlement or ritual activity and agricultural activity. The allocation will likely cause 'less than substantial harm' harm to the setting of eight designated heritage assets (seven Grade II listed

Site A93: Land at Pattiswick Hall Farm – Full Site	
Effect	**Description of Effects**
	buildings and Stisted Conservation Area). There are few important landscape designations within the surrounding landscape, with the exception of a few Priority Habitats (Coastal and Floodplain Grazing Marsh and Deciduous Woodland) surrounding the River Blackwater to the south and south-west. There are also a number of other Priority Habitats (Deciduous Woodland) in the landscape surrounding the site, such as Prior's Wood and Captain's Wood. Overall, strong views are obtained from the site into the surrounding characteristic landscape. Ecologically there could be impacts upon Priority habitats and species; this includes potential impacts to the River Blackwater and its associated riparian habitats. In addition, there could be impacts upon irreplaceable habitats, i.e. an ancient tree situated within the site, as well as the direct loss of two hedgerows and a notable tree.
Social	At this stage in the plan-making process, it can be assumed that all proposals would lead to minimum policy standards (as established in the MLP) in regard to restoration and after-use (for example biodiversity value / net gain, or for social or economic gains). There are various residential properties within 250m of the site and although mitigation is considered possible it is likely to be difficult to achieve. Public Rights of Way (PRoWs) run through the site and will require diversion.
Economic	All candidate sites at this stage can be expected to provide jobs associated with the minerals industry. With estimated reserves / deposits of 8.2mt, the site is identified as having significant effects regarding meeting sand and gravel needs in the plan period. The creation of a new access onto the A120 is contrary to Department for Transport Circular 1/2022 Strategic Road network and the delivery of sustainable development. As such, to date there has been an initial policy objection from National Highways.

Site A94: Land at Highfields Farm

Figure 50: Map of Site A94: Land at Highfields Farm

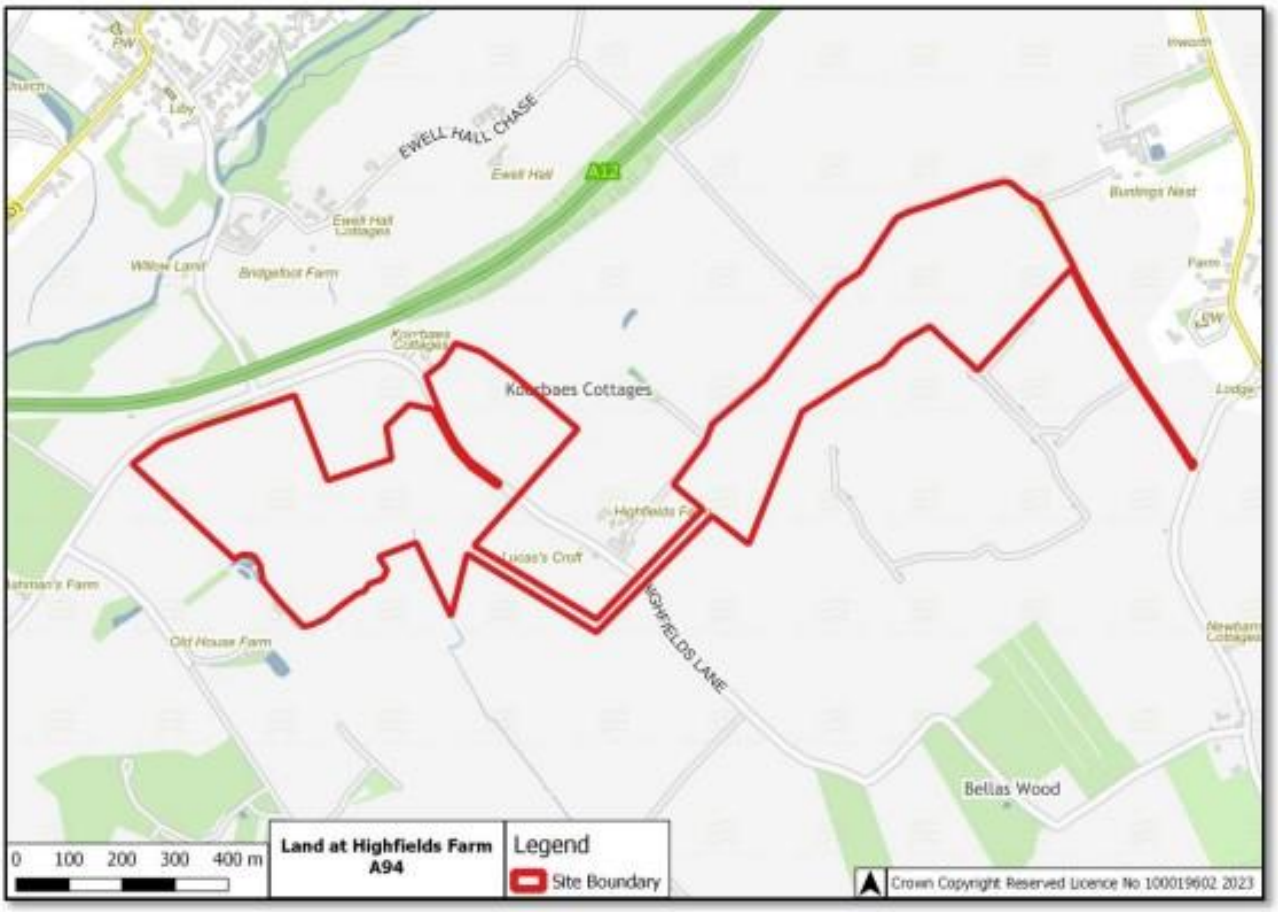


Table 59: Detailed assessment – Site A94: Land at Highfields Farm

Site A94: Land at Highfields Farm	
Effect	**Description of Effects**
Environmental	The majority of the site is within a Drinking Water Protected Area (Surface Water), with the exception of a small area in the north eastern part of the site. The site is also assessed as having a 'high' potential for surface water flood risk as identified within the SFRA and a 'medium' groundwater flood risk. The site contains (in part) Grade 2 quality soil (very good quality agricultural land). The site lies within an area of archaeological features as identified through aerial photographic evidence, including evidence for possible prehistoric ritual activity,

Site A94: Land at Highfields Farm	
Effect	Description of Effects
	settlement, and Roman industrial activity. Furthermore, the nationally important site of an Iron Age warrior may lie within the site. The allocation of the site would result in a high level of less than substantial harm to the significance of the Grade II listed Highfields Farmhouse and attached cottage. Furthermore, it would also result in a low level of less than substantial harm to the Grade I Listed Parish Church of All Saints; the lowest level of less than substantial harm to the Grade II Listed Inworth Hall; and the lowest level of less than substantial harm to the Grade II Listed Harborough Cottage. Kelvedon Hall Wood (Ancient Woodland) is located 0.3km to the south of the Site, and other Priority Habitats (Deciduous Woodland) are located within the River Blackwater valley to the immediate west of the site. Ecologically, there could be impacts regarding irreplaceable habitats, i.e. a veteran tree and ancient woodlands. There could also be the loss of, and indirect impacts to, Hedgerow Priority habitat, mature trees, and watercourses.
Social	At this stage in the plan-making process, it can be assumed that all proposals would lead to minimum policy standards (as established in the MLP) in regard to restoration and after-use (for example biodiversity value / net gain, or for social or economic gains). There are various residential properties within 250m of the site and although mitigation is considered possible it is likely to be difficult to achieve. Public Rights of Way (PRoWs) run through the site and will require diversion.
Economic	All candidate sites at this stage can be expected to provide jobs associated with the minerals industry. Access is proposed from Windmill Hill which is a local road that connects to the B1029 which is a Secondary Distributor in Essex County Council's Development Management Route Hierarchy. From a highway viewpoint Windmill Hill, the B1023, and connections to the Main/Strategic Road Network via the A12 Trunk Road, are not suitable in their current form. Any access taken from Windmill Hill would not be supported by the Highway Authority due to the unsuitability of Windmill Hill and the local road network.

Site A95: Land at Bellhouse Fam South

Figure 51: Map of Site A95: Land at Bellhouse Fam South

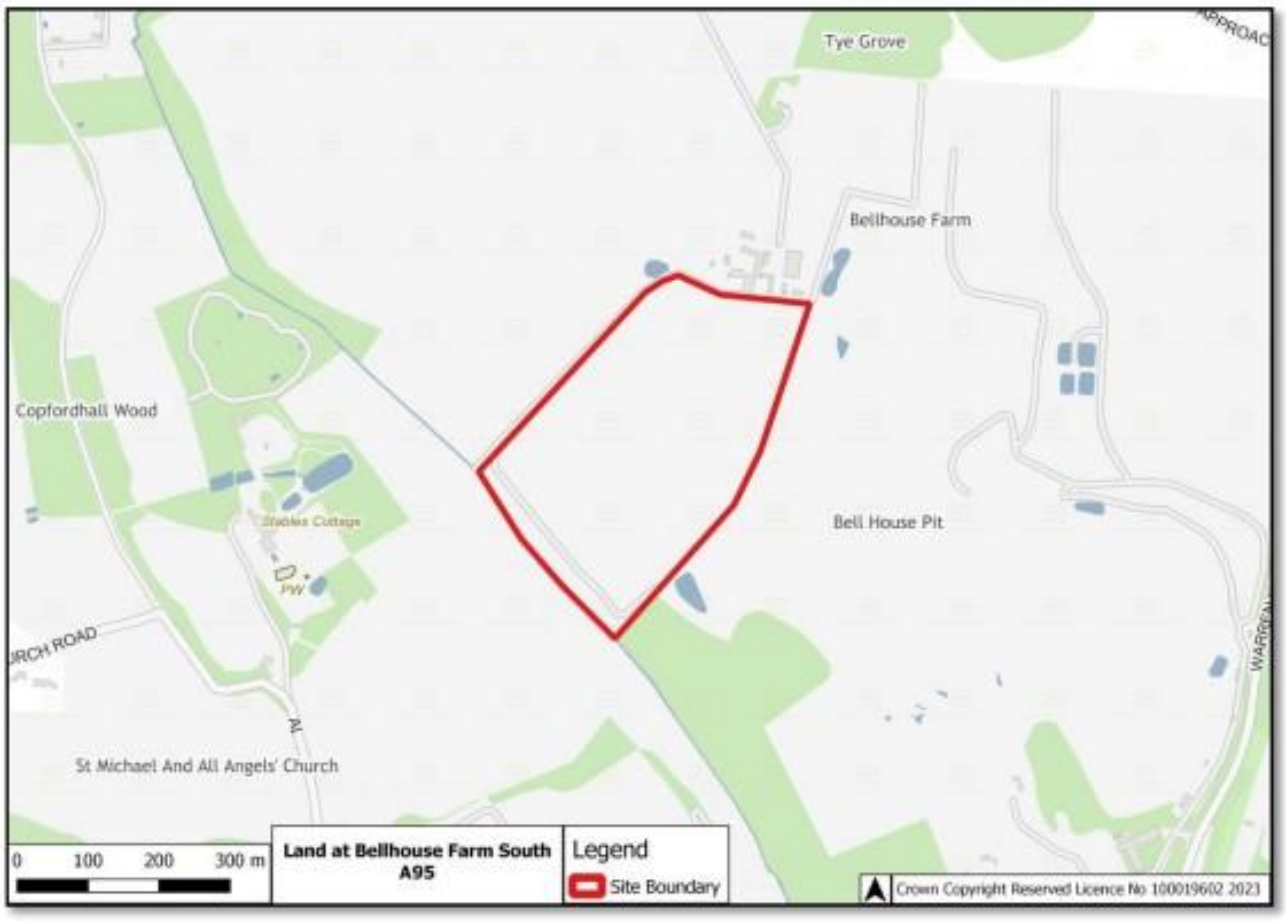


Table 60: Detailed assessment – Site A95: Land at Bellhouse Fam South

Site A95: Land at Bellhouse Fam South	
Effect	Description of Effects
Environmental	The HRA 'screens in' in the possibility of Likely Significant Effects on the integrity of a Habitats site, should this site be allocated, in regard to water quality. Ecologically, there could be impacts upon adjacent ancient woodland, which is irreplaceable habitat, as well as the Gol Grove and Hanging Wood Local Wildlife Site (Co58), the Roman River and associated habitats, and Priority habitats and species. Development of the site could also see the loss of two mature oak trees. The site is

Site A95: Land at Bellhouse Fam South	
Effect	Description of Effects
	within a SPZ (Zone III) and is also identified as having a 'medium' groundwater flood risk. The site contains (in part) Grade 2 quality soil (very good quality agricultural land). The site lies adjacent to an area which contains extensive cropmarks. The cropmarks comprise a series of enclosures probable of Late Iron Age or Roman date. The western edge of the site abuts the route of a projected Roman road running from Colchester in a south westerly direction. The site also lies within the Valley of the Roman River with the potential for Paleoenvironmental deposits within the valley bottom. The allocation of the site would likely result in 'less than substantial' harm at a high-level to the significance of three Grade II listed buildings through a change within their settings (Bellhouse Farmhouse, Barn to East of Bellhouse Farmhouse, and Barn to North East of Bellhouse Farmhouse). The allocation of the site would also likely result in 'less than substantial' harm at the low end of the spectrum to three Grade II listed buildings, and also 'less than substantial' harm at a mid-level to the Grade I listed Church of St Michael and All Angels. The site possesses a number of characteristic features of the South Colchester Farmlands LCA, which includes the large flat farmland plateau, dissected by occasional small narrow valleys, with arable land use, dispersed blocks of woodland and straight regular fields. Views are obtained from either side of the Roman River valley of the characteristic arable landscape, with views partially obscured by the woodland presence surrounding the river. Hanging Wood Ancient Woodland and Copford Hall Priority Habitat (Woodpasture and Parkland) are also located in close proximity to the site, with other Priority Habitats (Deciduous Woodland) located within the surrounding landscape and along the Roman River valley.
Social	At this stage in the plan-making process, it can be assumed that all proposals would lead to minimum policy standards (as established in the MLP) in regard to restoration and after-use (for example biodiversity value / net gain, or for social or economic gains). There are various residential properties within 250m of the site and although mitigation is considered possible it is likely to be difficult to achieve.
Economic	All candidate sites at this stage can be expected to provide jobs associated with the minerals industry. Access is proposed via an existing access serving Stanway Quarry onto Warren Lane which is classified as a Secondary Distributor in Essex County Council's Development Management Route Hierarchy

Site A96: Rayne Quarry – Southern Extension

Figure 52: Map of Site A96: Rayne Quarry – Southern Extension

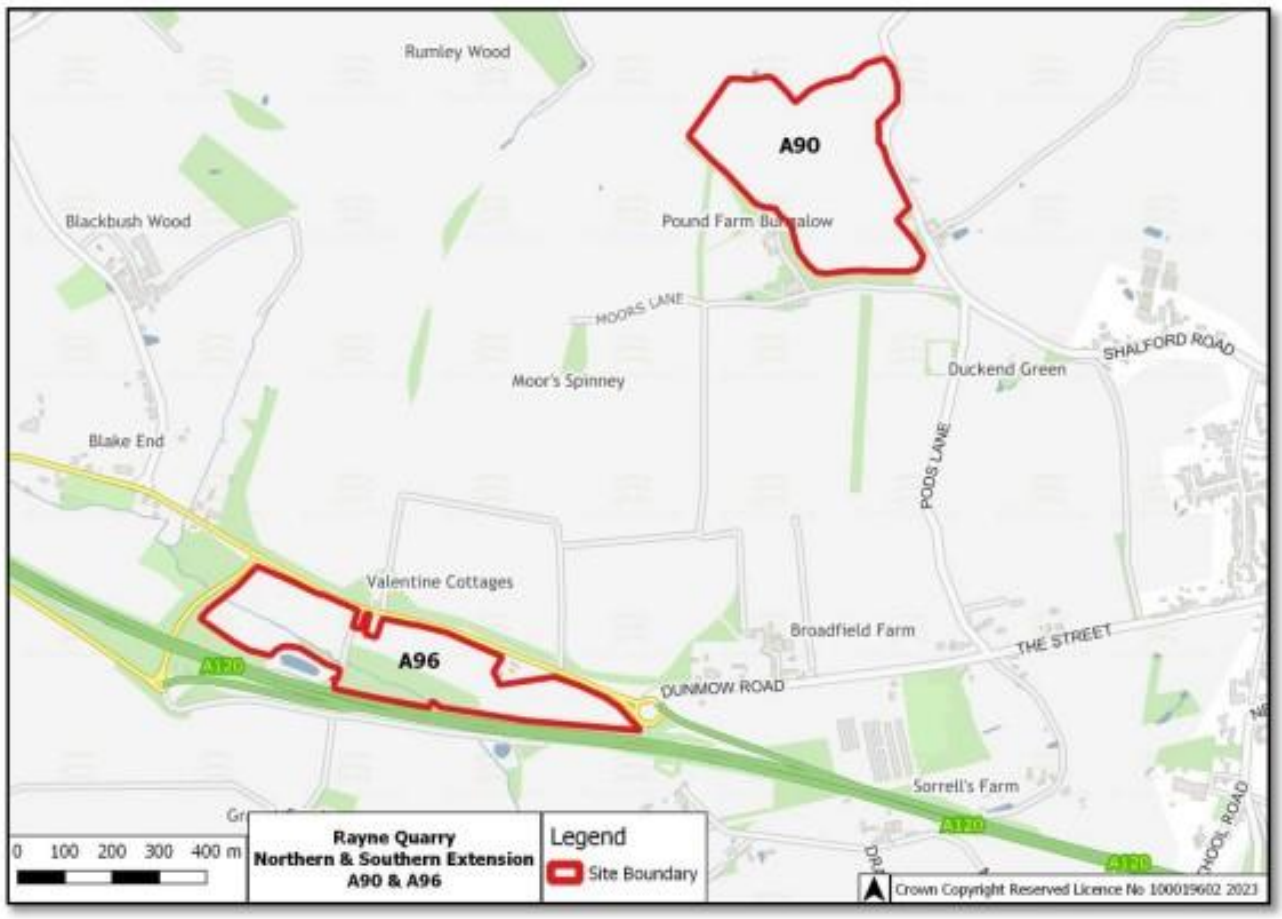


Table 61: Detailed assessment – Site A96: Rayne Quarry – Southern Extension

Site A96: Rayne Quarry – Southern Extension	
Effect	Description of Effects
Environmental	The site is within a SPZ (Zone III) and is further assessed as having a 'high' potential for surface water flood risk (as identified within the SFRA) and as having a 'medium' groundwater flood risk. The site is predominantly within FRZ1 (58.7%), however 35% of the site is with FRZ3 and is at risk from fluvial flooding. The site contains (in part) Grade 2 quality soil (very good quality agricultural land). The site contains evidence recorded through aerial photography for historic field

Site A96: Rayne Quarry – Southern Extension	
Effect	Description of Effects
	boundaries. The site also lies along a Roman road and Roman settlement and burial activity is recorded in the immediate area. The allocation of the site would likely result in 'less than substantial' harm at a low level to the significance of five Grade II listed buildings through change within their settings. The Landscape Character Area (LCA) is Central Essex Farmlands (B1) and the site possesses some characteristic features of this, notably small woods and copses that provide structure and edges to the landscape within an arable landscape of medium sized fields. A large portion of the site is currently woodland and 1ha of this was planted under English Woodland Grant Schemes – Broadfields Farm with a Woodland Creation Grant in 2012. Ecologically, there could be an impact upon the River Ter and Priority habitats and species. The proposal is likely to result in the direct loss of an extensive area of habitat along the wildlife corridor. This would further result in dissecting habitat in an area where the movement of species is already hindered by several roads, particularly the A120. As such there is the potential for development as proposed to adversely affect a number of protected and Priority species utilising the river corridor, such as Water Vole, Otters, and bats.
Social	At this stage in the plan-making process, it can be assumed that all proposals would lead to minimum policy standards (as established in the MLP) in regard to restoration and after-use (for example biodiversity value / net gain, or for social or economic gains). There are various residential properties within 250m of the site and although mitigation is considered possible it is likely to be difficult to achieve.
Economic	All candidate sites at this stage can be expected to provide jobs associated with the minerals industry. Access is proposed via an existing access serving Rayne Quarry onto the B1256 which is classified as a Secondary Distributor in Essex County Council's Development Management Route Hierarchy. The site lies to the south/west of the existing Rayne Quarry on the opposite side of the B1256. There is no information submitted to demonstrate whether an access or crossing that complies with highway standards can be achieved on to the B1256.

Site D7: Land at Pond Farm (proposed transhipment site)

Figure 53: Map of Site D7: Land at Pond Farm (proposed transhipment site)

Table 62: Detailed assessment – Site D7: Land at Pond Farm (proposed transhipment site)

Site D7: Land at Pond Farm (proposed transhipment site)	
Effect	Description of Effects
Environmental	The HRA 'screens in' in the possibility of Likely Significant Effects on the integrity of a Habitats site, should this site be allocated, in regard to water quality. The site is within a Drinking Water Protected Area (Surface Water) and is assessed as having a 'medium' potential for surface water flood risk as identified within the SFRA. The site contains Grade 2 quality soil (very good quality agricultural land). The site

Site D7: Land at Pond Farm (proposed transhipment site)	
Effect	Description of Effects
	contains evidence recorded on the Essex Historic Environment record for a possible settlement enclosure and Prehistoric, Late Iron Age/Roman, and Roman settlement activity is recorded in the surrounding area. The Site has potential to contain Palaeolithic archaeological remains and Pleistocene faunal and palaeoenvironmental remains. The site has been part evaluated and archaeological mitigation has been agreed in the western section as part of the A12-A120 widening scheme. The allocation of the site would likely result in 'less than substantial' harm at a mid-level to the significance of the Grade II listed Pond Farmhouse, as well as to the Barn to the west of Pond Farm. Furthermore, impacts on the Grade II listed Barn to the south of Pond Farmhouse are likely to be at the lower end of 'less than substantial.' There are no important landscape features located within the immediate vicinity of the site, however a number of small Priority Habitats (Deciduous Woodland) are located on the opposite side of the A12.
Social	There are various residential properties within 250m of the site and although mitigation is considered possible it is likely to be difficult to achieve.
Economic	All candidate sites at this stage can be expected to provide jobs associated with the minerals industry. It is unclear from the information provided as to the proposed access strategy having regard to the current road layout and future scenarios associated with the A12 DCO. Access from the local highway network via Eastways Industrial estate is constrained and access to the current A12 would be contrary to Department for Transport Circular 1/2022 Strategic Road network.

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